DIYALA OBJECTS PUBLICATION PROJECT

McGuire Gibson and Clemens Reichel

The past year was another productive one for the Diyala Project, which allowed us to move substantially closer to our goal, the publication of all "miscellaneous" objects found during the Diyala excavations.

The Diyala excavations, undertaken between 1930 and 1937, were groundbreaking in every respect. Four large sites — Tell Agrab, Tell Asmar (ancient Eshnunna), Ishchali, and Khafaje — were excavated, uncovering palaces, temples, and large city quarters dating between 3000 and 1800 BC. In addition to these major architectural discoveries, over 15,000 objects were found. These objects not only reflect comprehensive cultural assemblages from various periods, thanks to their well-recorded stratigraphic provenience, but their association with different architectural contexts also allows us to reconstruct behavioral patterns that are reflected in the functions of rooms or even reconstruct the social units that operated in these buildings. While virtually all of the architecture was published by the excavators themselves, only those categories of artifacts that were deemed to be the most significant, such as sculpture, reliefs, cylinder seals, and pottery, were published by them. Some 12,000 "miscellaneous" objects, which were meant to be treated in a large volume, however, lay unpublished and neglected until 1992, when we initiated this special project. The term "miscellaneous" is somewhat misleading, since these objects are by no means insignificant and are sometimes more critical for determining the function of a room or area than the major objects that have already been published. The objects include statue fragments, stone and metal vessels, stamp seals and even cylinder seals, plus the clay sealings upon which seals were rolled. Numerous bone and stone inlays, terra-cotta figurines and reliefs, tools, weapons, and weights can be added to this list. Perhaps most surprisingly, most of the 2,000 cuneiform texts found during these excavations have so far remained unpublished. For decades, this incomplete state of publication has therefore prevented scholars from utilizing this unique and unparalleled corpus of excavated material.

The original conception of the project not only envisaged the production of book volumes but also foresaw the distribution of this material in some electronic, computerized form. As time has passed, the power of computers, the capacity for storage, and more importantly, the evolution of the Internet, have caused us to rethink the nature of the eventual "publication." We are now planning an entirely electronic publication for the Miscellaneous Objects volume via a web browser, although we reserve a role for a future print component as well.

Our project was first funded by a grant from the National Endowment for the Humanities between 1995 and 1999. At that stage, we entered most of the primary data into database files, under the direction of Project Coordinator Claudia Suter. Seeing the increased probability of electronic publication, we applied for and were granted funding from the Provost's Academic Technology Innovation Program in 1999/2000. The results of that year's work, done mainly by

Clemens Reichel, the new Coordinator, were so promising that we were able to gain a renewal of the Provost's Grant for 2000/2001. The next stage will be devoted to making our data available via the World Wide Web. This crucial step will be made with the help of a new volunteer, George Sundell, a data architect on whose work we report below.

Sundell's work will recast our entire presentation of material, but it rests on the previous volunteer efforts undertaken by Joyce Weil, Betsy Kremers, and Richard Harter. We regret to report

Figure 1. Joyce Weil puts finishing touches on Diyala excavation picture scanned at University's Digital Media Lab

that in March 2001, Joyce Weil died in a tragic accident (see also *Volunteer Program, In Memoriam*, below). With Joyce, we not only lost an eminently qualified and tireless volunteer, but also a supportive friend. Her persistence in "getting things done," stoically and without complaints, and her dry sense of humor are badly missed by all of us. Joyce had worked for us since 1996, first undertaking the enormous task of scanning on our flatbed scanner all available object photographs taken by the excavators. When she finished this job in 1998 and no more prints could be found, Joyce continued to scan large-scale negatives for which no prints were available at the University's Digital Media Lab. After Joyce completed this task in summer 1999, she scanned the original field negatives of the excavations (fig. 1). Few of these pictures had ever been printed before, and therefore were unknown to us. Joyce therefore provided us with an enormous amount of new and interesting data, which will allow us to show the contexts in which many of the objects were found. She finished this enormous job in February 2001, shortly before her untimely death. Perhaps there is some comfort in knowing that, while Joyce herself will not see the fruits of her work, the rest of the world will be able to do so when we have put this material on the web.

Betsy Kremers continues to do valuable work as our object photographer, taking pictures of the Diyala artifacts that had so far remained undocumented even though they have been in the Oriental Institute Museum since the 1930s. After having taken pictures of weights, metal objects, mace-heads, jewelry, reliefs, and inlays between 1998 and 1999, she turned her attention to the 1,500 unpublished clay tablets found during the Diyala excavations. The difficulties that a "proper" photograph of a tablet involves have been pointed out in previous *Annual Reports*. The light has to come from the top left corner to ensure that the cuneiform text can be read. But very few tablets are flat. Most of them have rounded or curved surfaces, which requires a fairly complex lighting setup. To ensure correct illumination, the photographer also has to be able to orient the tablet properly and therefore essentially be able to at least read some cuneiform signs. Betsy not only developed great skills in lighting tablets but also trained herself in the basics of cuneiform writing. The results speak for themselves — so far Betsy has taken some 3,000 pictures of 650 unpublished tablets, and the quality of her pictures is excellent.
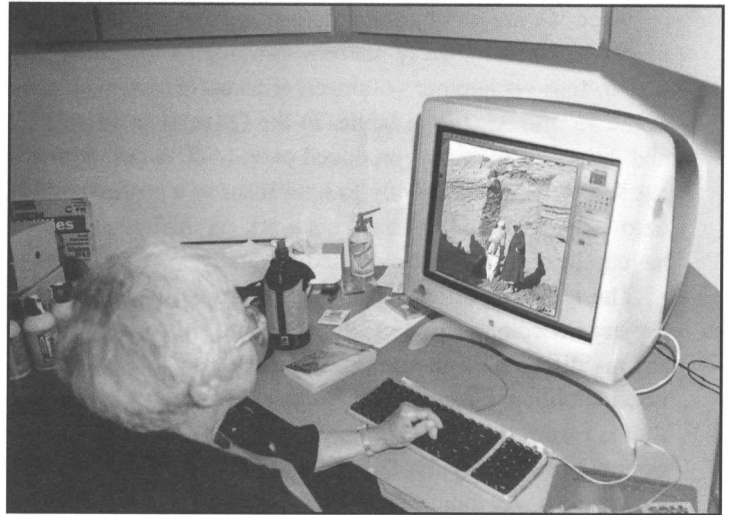
Since we are aiming towards a web-based publication, we decided to scan the new 35 mm negatives taken by Betsy, thereby eliminating the need for photographic prints. We were fortunate to find yet another volunteer, Richard Harter, who since 1998 has been scanning negatives at the 35 mm negative scanner in the Oriental Institute's Computer Laboratory. Richard's care and diligence has so far produced over 1,500 scans. Although the increasing number of pictures has forced us more recently to send films to a professional lab to have them scanned and burned onto CDs, Richard continues his work on difficult and technically challenging pictures, which have to be digitized and modified manually.

The most important news for the project in the past year has been that Clemens Reichel, Project Coordinator since 1999, completed his own "monumental" task by finishing and defending his dissertation in spring 2001 (see also *Individual Research*). Clemens's dissertation, entitled "Political Changes and Cultural Continuity at the Palace of the Rulers in Eshnunna (Tell Asmar) from the Ur III period to the Isin-Larsa period (c. 2070–1850 BC)," provides a good example of the way the Diyala material can be used for archaeological and socio-historical investigations. As indicated in previous reports, Clemens concentrated his analysis on a building named the "Palace of the Rulers." This building was built around 2070 BC as the seat of the provincial administration, at a time when Eshnunna was part of the Ur III state. When the city became independent and the capital of a state around 2025 BC, this building became the seat of its government. For a period of 200 years (c. 2000–1800 BC) Eshnunna's fortunes and fate can be followed in the palace's architectural layout, its artifact assemblage, and destruction layers found in it. While Clemens consulted many of the 1,100 unpublished tablets found in this building complex, he concentrated his research on the 200 clay sealings found in it. By correlating the archaeological context with information found in the cuneiform texts or the seal legends found on the sealings, he was able not only to revise the building's chronology and construction history but also explain important functional changes in it. A good example for such a change can be found in the so-called Shusin temple, a large building that had been attached to the palace during the Ur III period and which originally had been dedicated to Shusin, one of the deified Ur III kings. Soon after Eshnunna's independence, this temple was desecrated and secularized, yet the building itself was not destroyed. Instead, a number of architectural modifications turned its innermost sanctuary, the temple cella, into the center of a very secluded suite (fig. 2). This suite was clearly of considerable importance since it was accessible from the throne room suite, but its function was not at all clear to the excavators. A detailed stratigraphic re-analysis and a thorough study of the artifact assemblage of this room leave little doubt that this suite of rooms was the "chancellery" of the palace, where cuneiform tablets were written, baked, and stored. Such clear changes in the layout and function of certain units, however, are counterweighed by elements of strong continuity in the social composition of the palace's administration. The administrator of the Shusin temple, for example, was transferred to a different unit of the palace; after him, his son, grandson, and great-grandson continued to work within the palace's administration. This example shows that changes in the government or even in the ruling dynasty did not cause great changes in the administration, indicating a great degree of adaptability of the families involved to new political realities.

Reichel will be appointed an Oriental Institute Research Associate to continue his work as Coordinator of the Diyala Object Publication Project. We have now arrived at a point in our research where we could begin to make some of the Diyala material available to the public via a web browser. First, however, we had to find a new computer application program that would support both our research and the web publication. Since 1995, we have been using FoxPro, a relational database program developed by Microsoft, as the application to run our programs.

1. SEVERAL SEALINGS bearing two different seals of the ruler Uṣurawassu (one shown here in composite drawing) were found in the former temple cella and two adjoining rooms. Some of them were door sealings, indicating that this suite was under the administrative control of the ruler. The long arrows mark the findspots of these sealings

2. TWO KILNS were constructed in the former temple cella. The smaller one of the two was built right into the cult niche, the place which presumably contained a cult stature of King Shusin before the desecration of the cella. A second, larger kiln was built into the eastern half of the cella. The function of these kilns was not determined by the excavators. The restricted access to this room prevented the transport of large amounts of fuel and ash in and out of it. Moreover, the presence of door sealings bearing the ruler's seal (shown to the left) suggests that the activities for which these kilns were used were under the direct control of the ruler and therefore of considerable importance
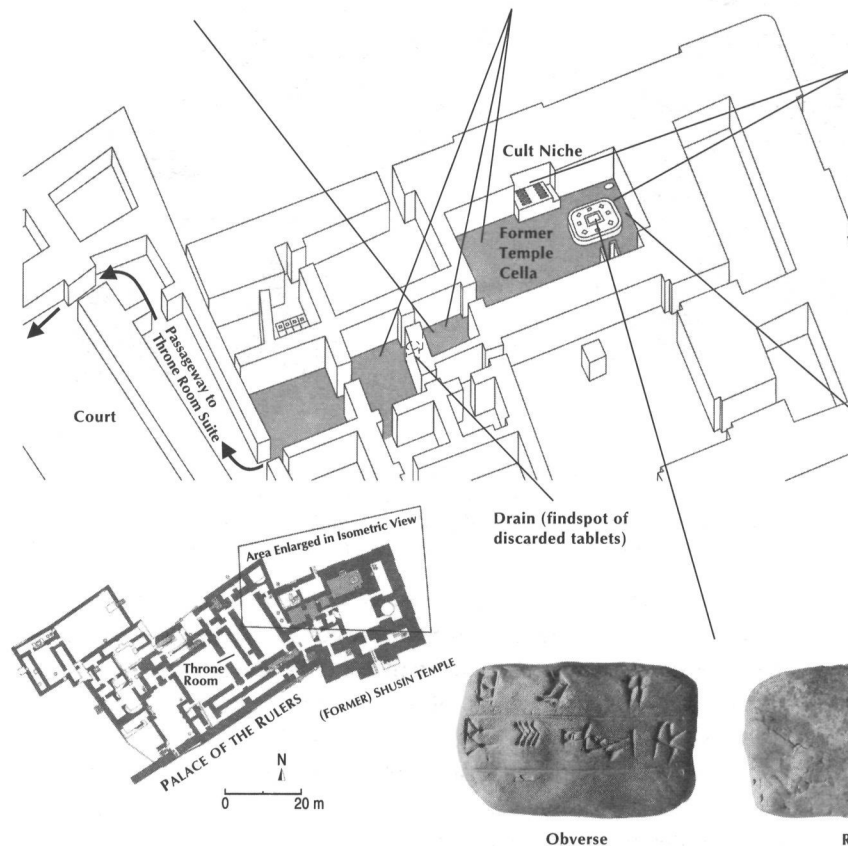
3. SEALING (As. 30:T.734) with the seal of Shu-ilishu, king of Isin, a powerful state in southern Mesopotamia, was found in the former temple cella. This is the only sealing with the seal of a foreign ruler that was found in this palace, suggesting that the activities undertaken in this suite also involved foreign affairs (drawing by Robert Whiting)

Cult Niche

Former Temple Cella

Passageway to Throne Room Suite

Court

Area Enlarged in Isometric View

Throne Room

Drain (findspot of discarded tablets)

PALACE OF THE RULERS (FORMER) SHUSIN TEMPLE

N

0   20 m

Obverse   Reverse

4. TABLET (As. 31:T.9) that was found in the firing chamber of the larger kiln suggests that these kilns were, in fact, used to bake tablets. Documents that were intended to last for a long period of time, such as letters, legal documents, and lexical or scientific texts, were often baked in antiquity to make them more durable. This find suggests that at the time shown here, the suite was used as the palace's "chancellery," in which tablets were baked and archived. This interpretation is supported by a large number of baked tablets that were found discarded in a later drain in the doorway between the two entrance rooms to this room suite (marked in plan).

The tablet from the kiln's firing chamber bears a short inscription ("Qurussa, son of Sheilha"), which was most likely a blueprint for a seal legend. One of the signs from Sheilha's name was repeated on the reverse, possibly to highlight the somewhat unusual palaeography of this sign to the seal cutter

Figure 2. ASSIGNING FUNCTION TO ARCHITECTURAL SPACE. The example given here shows how spatial analysis of artifacts can help to identify the function of an architectural unit. The isometric view shows the eastern half of the Palace of the Rulers at Tell Asmar (ancient Eshnunna) with the Shusin temple, dedicated to Shusin, one of the deified kings of Ur, which was added to the palace around 2030 BC. Soon after Eshnunna gained its independence from Ur the temple was secularized and its layout altered. Later on (ca. 1990–1980 BC) the temple's cella became part of a secluded room suite (shown in gray shading) that could be accessed from the throne room suite by a series of small rooms. The function of this unit, which had remained unclear to the excavators, could be determined with the help of two kilns in the former cella and several artifacts (tablets and clay sealings) found there. Based on these finds it was possible to identify this room suite as the palace's "chancellery." Diyala Objects Publication Project

RESEARCH

1. A building plan, in this example the Palace of the Rulers at Tell Asmar, is selected from a map of the site (not shown)

2. Clicking on a selected area of the building plan (marked by black rectangle) displays an enlarged detailed map of this sector
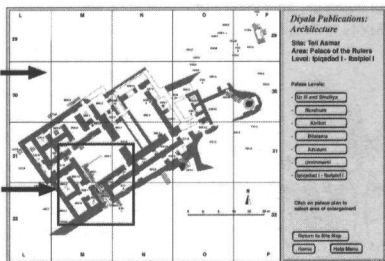
3. Clicking on a room or locus in this plan (here M31:12) provides a complete list of objects found in this location, shown on the right of this screen

4. Detailed descriptions of each object can be viewed by clicking on the object find numbers
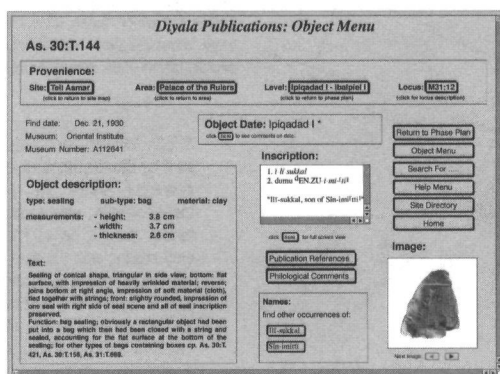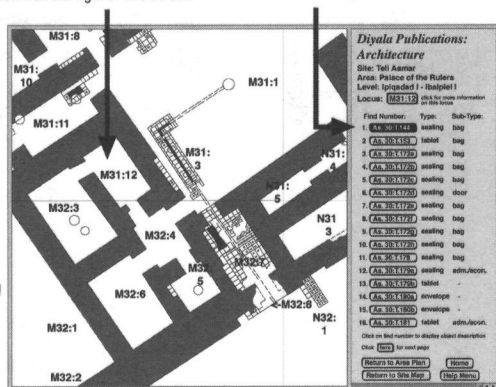
5. Small previews of object photographs or drawings can be enlarged by clicking on them
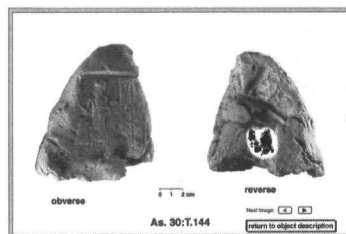
Figure 3. LINKING ARCHITECTURE AND ARTIFACTS ON THE SCREEN. This model for a set of Diyala web pages shows how archaeological finds are displayed within their architectural context. Such screen menus will not only ease the functional analysis of excavated buildings substantially but also enable researchers to re-assemble artifact assemblages as they were found during excavation. Diyala Objects Publication Project

FoxPro served us well over the last few years, but we have started to "outgrow" it. Our searches on the computer had become more refined and increasingly we have begun to feel the limitations of the program. We realized that for a suitable alternative that will not only provide web access to the Diyala material for users around the world but also allow us virtually unlimited future development, we had to take a gigantic next step in computer applications. Last fall we decided that Oracle 8-i or 9-i, the database application which is most widely used in the industry, would be the most suitable replacement. Over the year Clemens had acquired a good background in programming, but it now became clear that we needed the help of an expert.

It was at this point that George Sundell joined our project. The timing could hardly have been better. George worked as a data architect for Ameritech for many years. He also has a good background in American archaeology and has himself participated in excavations. Finding someone who not also has broad knowledge of data management on the computer but is also familiar with and sympathetic to the imperfections and human factors that archaeological work necessarily brings along is indeed a rare stroke of luck for us. In the past few months George and Clemens have been working on fundamental, logical, and physical models for an Oracle-based version of the Diyala Project. While the complexities involved in data organization and data processing may look mind-blowing to the lay person, it is our intended goal to make web-based access as user-friendly as possible. Researchers will be able to browse for individual objects and will also be able to ask for certain categories of objects, specific material, or certain common characteristics of objects belonging to different categories. Every object will be displayed with one or more photographs; drawings will be added wherever necessary. The user will also have the option of calling up building plans; clicking on a certain location within the building will

provide him with a list of items found in it (fig. 3). This system will be highly interactive. A simple click will allow the user to find other examples of a certain pot type and where they were found or list all occurrences of a personal name in cuneiform texts found at any of the four Diyala sites. In the future this material could be linked to other sites and allow search queries beyond the Diyala. Searches that would have taken hours, if not days, using paper volumes will eventually be possible within seconds.

Needless to say, these goals will take time to implement. We anticipate the first version of the web-based Diyala Project to go online in spring 2002. We are in process of applying for more funding to keep the project going another three years. This period should allow us to finish the work as outlined above, but research will continue beyond that time. With the Web, we will be able to involve scholars overseas who might never set foot into the Oriental Institute, yet we will be able to update our databases with their work.

In all this work we will keep relying heavily our volunteers. Their skilled and tireless work is fundamental to our success, and we want to thank them one more time for their enthusiasm in making this project so successful.

———————————————