

# News & Notes

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THE  
**ORIENTAL  
 INSTITUTE**  
 OF THE UNIVERSITY OF CHICAGO



# FROM THE DIRECTOR'S STUDY

One of the most unique and important aspects of the Oriental Institute is our dedication to the integration of archaeology, textual studies, and art history as three complementary “ways of knowing” about the past. When combined, these provide the best holistic understanding of how the ancient civilizations of the Near East developed, flourished, and eventually collapsed. By bringing together specialists in these three fields with a clear research mission, James Henry Breasted created an innovative model of scholarship that continues to provide new insights into the origins of literate urban civilizations in the “Fertile Crescent.”

The two lead articles in this issue are wonderful examples of the value of this integrative, holistic approach. Hervé Reculeau’s article “Farming in Ancient Mesopotamia” examines the organization of agricultural systems in Mesopotamia. Although many scholars have explored the Neolithic origins of farming in the Near East, it is equally important to understand how the inhabitants of the first cities produced enough food to reliably feed the massive aggregations of people living in these emergent urban centers. Reculeau shows us how researchers from the Oriental Institute combined evidence from texts, ancient landscapes, ecology, excavated artifacts, architectural remains (such as the famous Jerwan aqueduct), and ancient art to reconstruct the complex evolution of farming in ancient Mesopotamia.

In a similar vein, James Osborne’s article “Forced Migration in the Iron Age” explores the way in which the Assyrian empire controlled the areas it conquered through mass deportations of conquered peoples from one province and their resettlement in other distant areas. This was a highly effective way to control these groups and forestall rebellions. We know of this policy from artistic evidence such as the Assyrian palace reliefs and from the annals of the Assyrian kings. However, it can be very difficult to actually detect these practices on (or in) the ground. Osborne shows how the archaeological record at sites such as Tell Tayinat (the ancient city of Kunulua) in southeast Turkey can provide the physical evidence for how the Assyrians implemented their policies of deportation and resettlement. This is an ideal place to investigate Assyrian forced migrations because we already know from the textual record that the Assyrian king Tiglath-pileser III resettled deportees at Kunulua in 738 BC. Osborne’s ongoing archaeological project in the lower town of Kunulua shows that this neighborhood was established and densely settled at just this time. Ultimately, this project will be able to investigate the ethnicity, material culture, and settlement history of this Iron Age diasporic community.

Taken together, these two articles show the tremendous insights that can be gained when we integrate texts, artifacts, and images to develop a holistic view of the ancient world.



Gil J. Stein, Director

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### THE ORIENTAL INSTITUTE

1155 East 58th Street  
Chicago, Illinois, 60637

#### WEBSITE

oi.uchicago.edu

#### FACSIMILE

773.702.9853

#### MEMBERSHIP INFORMATION

773.702.9513

oi-membership@uchicago.edu

#### MUSEUM INFORMATION

773.702.9520

#### SUQ GIFT AND BOOK SHOP

773.702.9510

#### ADMINISTRATIVE OFFICE

773.702.9514

oi-administration@uchicago.edu

#### MUSEUM GALLERY HOURS

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#### CREDITS

Editors: Rebecca Cain, Leslie Schramer, Tom Urban, and Jennie Myers

Designer: Rebecca Cain

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*On the Cover: “The Fertile Crescent,”* from James Henry Breasted and James Harvey Robinson, *Outlines of European History, Part 1*, 1914

# FEATURED EXHIBITION



Chad Hill, flying the multi-rotor DJI Phantom 3 drone over the looted Early Bronze Age site of Fifa, Jordan.  
Photo: Morag Kersel, courtesy of the Follow the Pots Project.

## DRONES IN THE DESERT: ARCHAEOLOGY FROM ABOVE

**Opens November 22, 2016**

**Lower Level of the Oriental Institute**

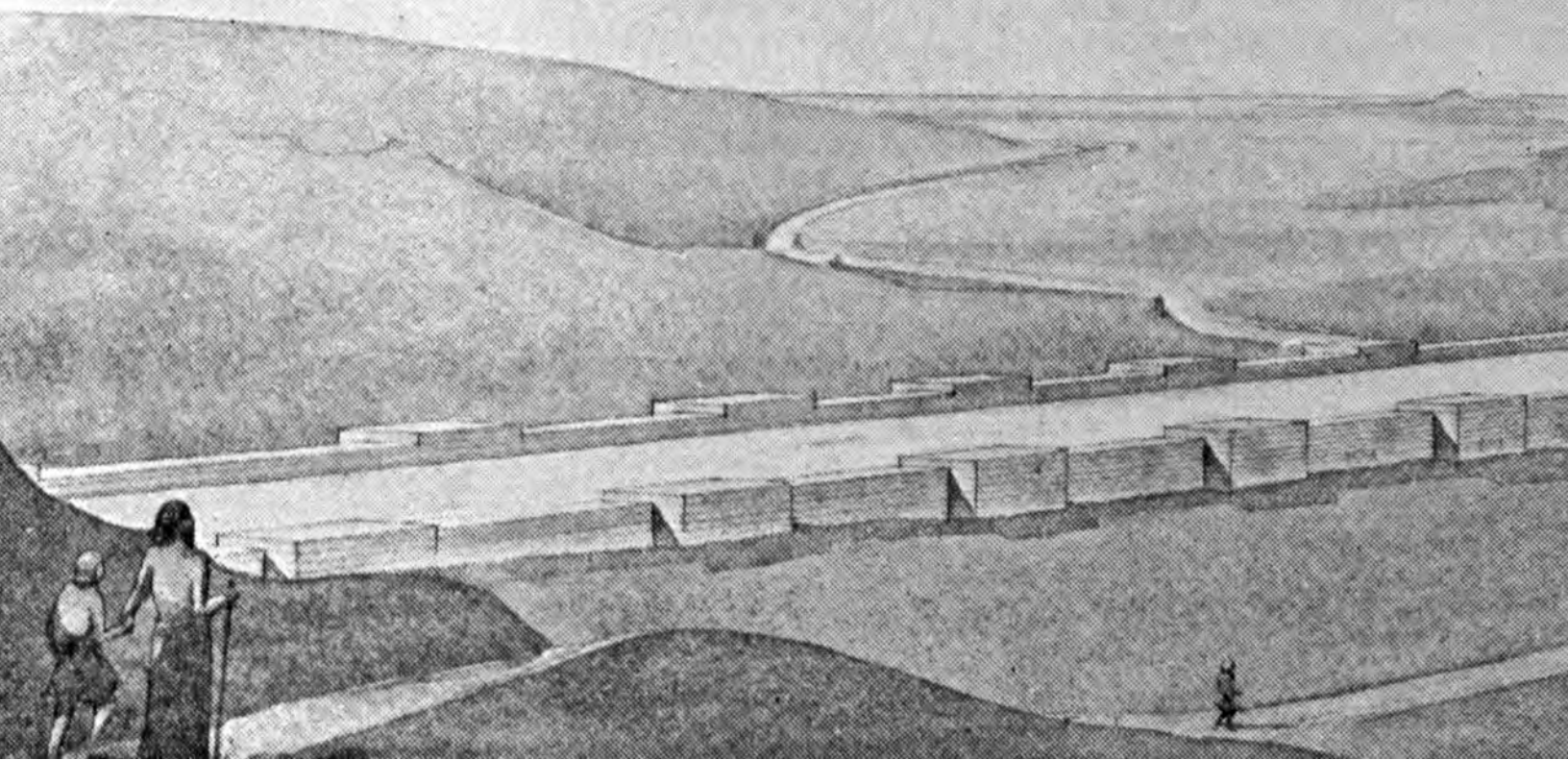
This exhibit of photographs explores how aerial perspectives allow archaeologists to detect patterns that may be invisible or unrecognizable from the ground. Kites, fishing poles, ladders, balloons, unpiloted aerial vehicles (UAVs), full-sized helicopters and planes, and satellites are all used to produce images that aid in assessing and mapping archaeological monuments, sites, and landscapes. The exhibit addresses how recent technological developments and sophisticated software programs are creating new and vibrant opportunities for archaeologists to do more with images from the air. The photos on display illustrate how archaeologists at sites in Jordan and Israel use drones to conduct broad-scale site surveys, monitor changes in the landscape (including looting), and map excavations.

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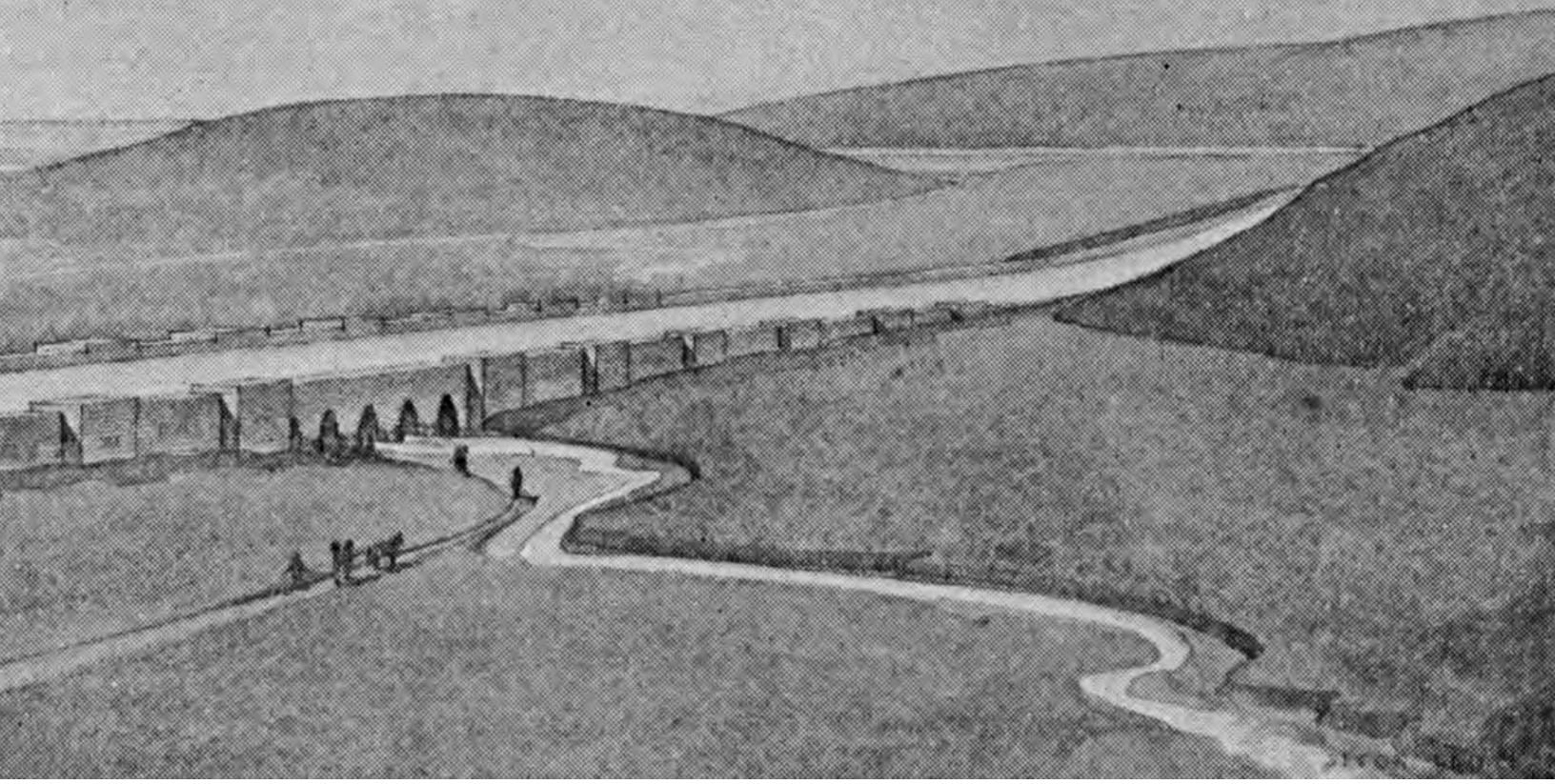




# **FARMING IN ANC MESOPOTAMIA**

**AND HOW THE ORI  
HELPED US UNDER**





"Perspective Restoration of Jerwan Aqueduct," from Thorkild Jacobsen and Seton Lloyd, *Sennacherib's Aqueduct at Jerwan*, OIP 24, 1935, fig. 6.

# IENT

# ENTAL INSTITUTE STAND IT

By Hervé Reculeau



Even if ancient Mesopotamia is justly remembered as one of the earliest and most prominent urban civilizations, its economy was fundamentally agrarian, and the vast majority of its population dedicated their lives to farming and herding. For more than a century, archaeologists and Assyriologists from all over the world have tried to understand the history of ancient Mesopotamian agriculture — and those who call(ed) the Oriental Institute their academic home are no strangers to that quest.

Natural conditions (climate, nature of soils, availability of water, etc.) affect and, to a certain extent, dictate the type of agriculture that can be developed within a given geographical area. Mesopotamia is commonly described as the southeastern end of the Fertile Crescent — a term that has become so ubiquitous that one seldom recalls that it was coined by James Henry Breasted, the Oriental Institute's founder and first director, in his 1914 contribution to a high school textbook (fig. 1). Yet it took several decades (and a technical breakthrough) before scholars were able to more fully investigate the origins of farming in the Near East. In 1949, University of Chicago chemists Willard F. Libby and James R. Arnolds revolutionized archaeology by introducing ra-

diocarbon dating. Two of the samples used for this discovery came from the OI's storage rooms, including one from Robert Braidwood's excavations at Tell Tayinat. He and his wife, Linda, soon adopted the method when starting their new excavations at the Neolithic site of Jarmo, in the foothills of the Zagros Mountains (for locations of sites mentioned in this article, see fig. 2). They also pioneered interdisciplinary studies in archaeology, bringing to the team (among others) a palaeo-botanist and a zoologist. For the first time, modern scholars had a precise view of the crop and faunal assemblages used by a Neolithic community, and they were able to date full-fledged agriculture several millennia earlier than what was usually assumed at the time.

Decades of research building on their methods now present us with the picture of a slow transition from hunting-gathering to fully developed farming between the eleventh and ninth millennia BC (calibrated date). This transition occurred in different areas of the Near East, especially the Levant (Jericho) and Anatolia (Çayönü, also excavated by the Braidwoods). Domestic einkorn, emmer wheat, hulled six-row barley, lentils, chickpeas and common vetch were the first crops to be domesticated. Flax



Above: Figure 1. "The Fertile Crescent," from James Henry Breasted and James Harvey Robinson, *Outlines of European History, Part 1*, 1914.

Opposite: Figure 2. Map of the ancient Near East with the sites mentioned in text. © Hervé Reculeau, based on a map by Martin Sauvage (École Pratique des Hautes Études).

for oil and textile production appears in the Balikh valley by the mid-eighth millennium bc. This early agriculture was rain-fed and used small-scale hoe farming. At Jarmo, tools include stone sickles (fig. 3, left), cutters, and vessels used for harvesting and food processing. Mesopotamia proper (what would become Sumer and Akkad) does not seem to have played an important role in these early developments, although one must remain cautious: any archaeological remains from that period would now lay buried under meters of alluvial sediments, and are virtually invisible.

The prehistory of Mesopotamia really starts around the mid-seventh millennium with the Ubaid culture, in the southern part of Iraq. Until the mid-twentieth century, these early periods were approached almost exclusively from the angle of the “urban revolution” (V. Gordon Childe), with a special insistence on how the requirements of large-scale irrigation led to the coercive control of populations by the bureaucracies of “hydraulic empires” (Karl A. Wittfogel). Things started to change in the late 1930s, when Thorkild Jacobsen, an Assyriologist at the OI who also engaged in field archaeology, conducted a preliminary survey of the Diyala valley (an eastern tributary of the Tigris

roughly at the latitude of Baghdad). Collecting ceramics from the surfaces of sites, he was able to date their occupation and to reconstruct the ancient waterways along which they were once located. This paved the way for a series of extensive surveys, conducted between the late 1950s and the mid-1970s in the Mesopotamian lowlands, under the supervision of another of the OI’s great names, Robert McC. Adams. For the first time, he and his colleagues Hans Nissen and McGuire Gibson were able to document long-term settlement and environmental evolutions on an unprecedented chronological depth (from prehistory to the present!). This led Adams to directly challenge Wittfogel’s “hydraulic hypothesis” by suggesting that, in the early stages, irrigation developed on a small-scale basis that did not require state control. In fact, irrigation was relatively easy in Lower Mesopotamia. The Euphrates and Tigris run on natural levees located above the fields, which can be inundated through simple gravity flow. More recent studies by Jennifer Pournelle even suggest that the earliest proto-urban developments in the south occurred in an environment of wetlands that sustained a diversified economy (from hunting and fishing to construction material and fodder

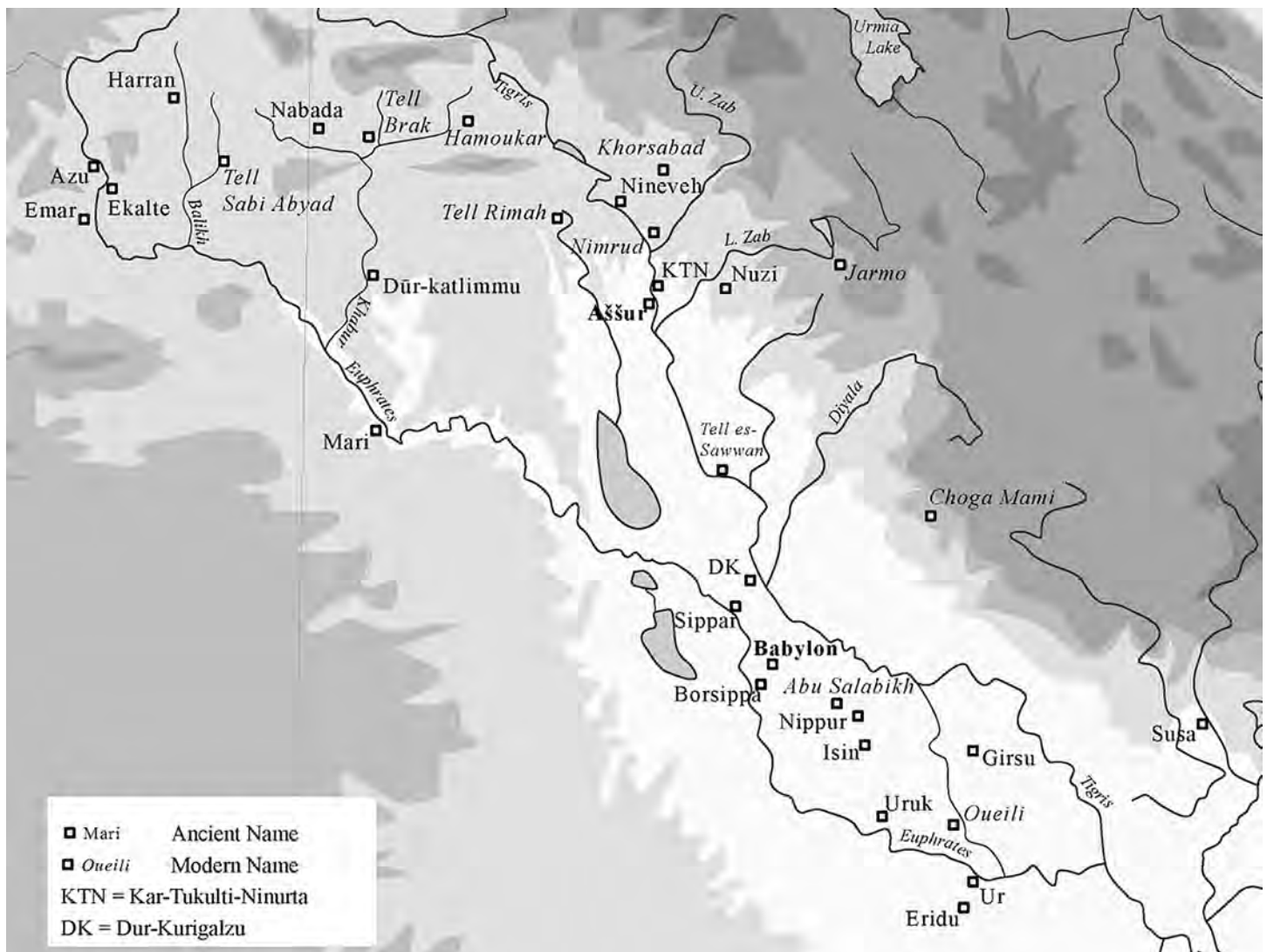






Figure 3. Left: Photo and drawing of a Neolithic chipped stone sickle from Jarmo, from Linda S. Braidwood et al., *Prehistoric Archaeology along the Zagros Flanks*, OIP 105, fig. 123. Middle: Late Ubaid clay sickle from the vicinity of Uruk (Iraq), OIM A34587. Right: Early Dynastic copper sickle from Tell Agrab (Iraq), OIM A21583.

for animals), in which cerealiculture was not the predominant activity. Things differed in central Mesopotamia, where sixth-millennium BC Samarran sites (Tell es-Sawwan; Choga Mami), located on the margins of the dry-farming zone, yielded the earliest traces of irrigation agriculture, roughly coinciding with a major agricultural innovation, sometimes tagged “the secondary products revolution” (Andrew Sherratt). Domestic animals began to be used not only for their meat and carcasses, but also for their wool, milk, and labor — especially for transport and plowing, with the ard (a simple, scratch plow; see fig. 4) replacing the hoe. The combination of irrigated cereals and date-palm gardening (which would be the trademark of southern Mesopotamia for millennia to come) is attested by the late fifth millennium BC at Ubaid sites like Oueili and Eridu.

The last centuries of the fifth and the fourth millennia BC have long been approached from a Sumero-centric perspective, focusing on the rise of complex urban societies in Uruk-period southern Mesopotamia. According to Italian historian Mario Liverani, the “urban revolution” was made possible by a “secondary agricultural revolution” based on four innovations: the long field (allowing furrow irrigation in narrow parallel strips of land bordering newly dug canals), the seeder plow (which minimized seed loss and increased productivity, while animal traction reduced the amount of labor necessary; see fig. 5), the threshing sledge pulled by a donkey (reducing efforts required for processing grains), and clay sickles (whose low cost compared to flint

blades allowed for many harvesters to work at the same time; see fig. 3, middle). These drastic changes would have been made possible by the emergence of temples, whose ideological coercion allowed them to require from villagers the corvée work necessary to dig and maintain large-scale irrigation systems. Productivity gains (estimated between five hundred and a thousand percent) yielded enormous surpluses that primarily profited the temples. This idea of a “Sumerian miracle” still has supporters, but it has been increasingly challenged over the past decades, as scholars have uncovered the situation of contemporary northern Mesopotamia. This is partly the consequence of a new approach, of which Adams was also a pioneer: by using aerial photographs and satellite (LANDSAT) imagery, he opened the way for the development of landscape archaeology. This new field of study soon became embodied by the founder of the OI’s Center for Ancient Middle Eastern Landscapes (CAMEL), Tony J. Wilkinson, and his students. Interdisciplinary by nature, landscape archaeology develops multi-scale approaches that take into consideration not only the (changing) natural environment and regional settlement patterns, but also local features like fields (including traces of manuring for fertilizer) and boundaries, roads and tracks, agricultural installations (threshing floors, field towers), and even pastureland — putting back into the picture transhumant herding, a feature no less important than farming to the Mesopotamian economy. More recently, the OI’s Modeling Ancient Settlement Systems (MASS) Project started combining environmental, archaeological,





Figure 4. Akkadian cylinder seal from Tell Asmar (Iraq) and modern impression, picturing the god Ea receiving four gods, the second carrying an ard. OIM A11349.



Figure 5. Modern impression of an Akkadian cylinder seal from Tell Asmar (Iraq), picturing the sun-god in a boat, with a seeder plow in the upper part. OIM A11396 (P. 57029).

and textual data with computer science and complex system theories in order to elaborate a dynamic model of the interactions between ancient agrarian societies and their environments. These developments coincided with a shift in archaeological excavations (partly owing to modern geopolitics) during the 1980s–2000s from the alluvium and marshlands of southern Iraq and their hilly foothills to the plateaus and valleys of northern Iraq and eastern Syria. These excavations revealed that proto-urbanism developed earlier in the north, at sites like Tell Brak and Tell Hamoukar. Given that some of the assumed Urukian “innovations” (such as clay sickles and flint blades used for threshing) are now attested in both the north and south, or appeared at a later date than Liverani assumed (such as the seeder plow, which replaced the ard only in the third millennium BC), it is preferable to view the agricultural innovations of the proto-urban period as a series of evolutions affecting both northern and southern Mesopotamia during the Late Chalcolithic period (4400–3000 BC), albeit differently depending on their respective environments. One striking aspect is the increasing focus on small cattle visible in faunal remains, with regional differentiation between Khuzestan (Susa) for goats and Mesopotamia for sheep. This suggests a change in textile production during the late fourth millennium BC, with linen being replaced by wool as the main fiber, and household production by specialized workshops attached to temples.

By the late fourth millennium BC, written evidence begins to complement archaeological data in our understanding of ancient Mesopotamian agriculture. If early twentieth-century Assyriologists had a more lexical than historical approach, by the 1960s a new generation of scholars started to cross disciplinary boundaries and sought to study agriculture as a dynamic phenomenon, both diachronically and synchronically. An early example was Ignace J. Gelb’s 1965 study of the Sargonic “Philadelphia Onion Archive,” where he advocated for the study of “lowly topics” of everyday life — earning economic studies in Assyriology the nickname “Onionology.” The most salient emblem of this new approach was the constitution of Cambridge’s Sumerian Agriculture Group, “an informally constituted body formed in 1982 to promote collaboration between botanists, archaeologists and scholars working on the cuneiform texts.” Despite their name, they did not limit themselves to ancient Sumer, and a series of workshops, organized by Assyriologists Marvin A. Powell and J. Nicholas Postgate, examined agriculture in ancient and (pre-) modern Iraq, and even parts of Syria. It was at one of these workshops that OI Sumerologist Miguel Civil presented a lecture on what would become the reference edition of the most iconic Sumerian literary text pertaining to agriculture, *The Farmer’s Instructions*. This wisdom text, ascribed to the god Ninurta, details the work to be performed during the agricultural year. Annual flooding in the spring, hoeing and plowing to prepare the fields, harrowing, sowing, maintaining the furrows, irrigating (three or four times), harvesting, threshing, winnowing, and finally storing the harvest. Other scholarly compositions offer glimpses of agrarian practices: one may cite the fourth tablet of lexical list *Ana ittišu* (probably compiled at nineteenth-century BC Isin), which contains many Sumerian terms related to cereal and date-palm cultivation together with their Akkadian translations and was edited by soon-to-be OI Assyriologist Benno Landsberger in 1937. Even law codes, such as the laws of Hammurabi (translated into English by Martha T. Roth), contain provisions on agricultural matters, such as leasing and cultivation of fields (§§42–52), maintenance of irrigation devices (§§53–56), grazing of sheep on fields (§§57–58), palm-groves (§§59–65), the renting of animals or taskforce for agriculture (§§242–58), or the stealing of agricultural devices (§§259–60). Given the southerly geographical origin of the Sumero-Akkadian scholarly tradition, this exceptional documentary situation is, however, limited to irrigation agriculture and ignores the traditions of dry farming in the north. In this region (and, in many respects, in the south as well), everyday records, such as letters and, more importantly, economic texts recording the expenditures and deliveries of agricultural goods, offer the most complete evidence for the evolution of farming in Mesopotamia between the third and first millennia BC.

The earliest documents (Late Uruk/Jemdet Nasr periods, at the turn of the third millennium BC) attest the existence of big estates with hundreds of dependents engaged in large-scale irrigation farming of barley, emmer, and probably date palm. At mid-third-millennium BC Abu Salabikh (whose tablets were edited by another OI Assyriologist, Robert



Figure 7. Ur III-period tablet from Abu Salabikh, dated to the mid-third millennium BC, recording a labor for irrigation work. Photo © The Cuneiform Digital





m Telloh (Iraq) with a record  
k. OIM A5469 / CDLI P109405.  
Library Archive.

D. Biggs) and slightly later Girsu, tablets attest a tripartite system of land tenure that would last until the mid-second millennium BC. Part of the estate's land was directly cultivated for the institution's needs, while the rest was allocated to its dependents as subsistence fields, and some parcels were leased to farmers against a fixed revenue. The Early Dynastic period witnesses the appearance of the seeder plow. By adding a funnel to the ard at the time of sowing, Sumerian farmers were able to drop cereal grains at regular intervals directly into the furrow, minimizing seed loss and increasing productivity. It was operated by oxen or donkeys, and the sowing season expanded over several months, from late summer to early winter. Fallow rotation may have been applied. Harvest occurred in spring and was performed with a saw-like tool. Copper sickles appear in the archaeological record in the early third millennium BC and are first attested in cuneiform texts from the Sargonic period (ca. 2300 BC) (fig. 3, right). In the Ur III period (twenty-first century BC), they become the standard harvesting tools. Sumerian fields were large (46 to 44 hectares), divided into furrows of various lengths, and separated by strip-shaped zones of overgrowth protecting the soil from wind erosion. In the marginal areas grew spices such as coriander and caraway. Field crops included flax, legumes, and vegetables, especially garlic and onions, of which a dozen varieties are known. They were harvested three times a year. Sesame was probably introduced from India in the course of the third millennium BC.

In Upper Mesopotamia, the beginning of the Early Bronze Age saw the development of a material culture independent from southern traditions. This corresponds to a decline in urban life and a process of ruralization in small centers and hamlets. Located in the dry-farming zone, they relied on rain-fed cereal farming at a time when the climate was relatively wet. The increasing presence of caprids in faunal remains and the decrease of wild species indicate specialized pastoralism in the steppe, linked to textile production. In the valleys of the Euphrates, Balikh, and Khabur Rivers, small settlements may have served as grain storage facilities for nomadic groups. Around the mid-third millennium BC, Mari must have relied on irrigation for its subsistence, while the plains of the Khabur Triangle saw the emergence of massive cities centered on a dry-farming hinterland. Analyses of satellite images show radiating roads (Tony Wilkinson's "hollow ways") used by farmers for traveling to their fields, while land surveys reveal traces of manuring on the fields. Tell Beydar (ancient Nabada) yielded the earliest written evidence for agrarian management in the Jezirah (ca. 2400 BC), picturing a large estate engaged in dry cereal farming and supervising sheep and goat herding. Around 2200 BC, many of these sites collapsed, a phenomenon that has been linked to the "4.2 kya event," a climatic anomaly visible in most palaeoclimatic records. Recent studies, however, suggest that some places were less affected than others, and that many agrarian societies in the area were capable of resilience in the face of climate change. Both the palaeobotanical and written records show a decrease, by the end of the third millennium BC, in drought-sensitive wheat and emmer, in favor of more stress-tolerant barley. In the Mesopotamian lowlands, this may also have been triggered by increasing salinization of the soil caused by poor drainage, as has been suggested by Adams, Jacobsen, and Gibson. In any case, the OI surveys around Nippur and Uruk indicate that the crisis was far less perceptible in the south, where irrigation prevailed, than in the dry-farming north. The flourishing of Neo-Sumerian city-states such as Girsu/Lagaš, and their numerous administrative records, attest to the vitality of agriculture in the last centuries of the third millennium, especially in the time when the dynasts of Ur established hegemony over Lower Mesopotamia (the "Ur III period," around 2100–2004 BC) (fig. 7).

After the fall of the Ur III empire, kings of Amorite descent took over Mesopotamia. The Old Babylonian documentation is more detailed than any other, especially in Mari (nineteenth–eighteenth centuries BC), where the union of both sedentary agriculturalists and nomad pastoralists under a common leadership offers an exceptional overview of tribal life and culture, as well as pastoral nomadism in the plateaus west and east of the Euphrates. The Mari archives document the cultivation of winter cereals (mostly barley) and pulses like broad bean, pea, and chickpea. Sesame and barley were the main summer field crops, and vines were grown hanging on trees in orchards that also contained fig, apple, pear, and pomegranate trees. Mari agriculture was dependent on irrigation, which required fetching the water of the Euphrates and Khabur several kilometers upstream in order to irrigate fields lo-

cated on terraces above river level. Some of the Mari fields were located directly on the valley floor and were farmed with small-scale irrigation; they were directly exposed to the destructive spring floods of the rivers, which caused frequent harvest losses. Contrary to contemporary Babylonia, where royal land was leased to independent entrepreneurs, the Mari farmers were palace employees who were expected to produce a quota of crops fixed in advance. The sowing season was determined by fluctuations of the river and the rising of a star opportunely called “the Yoke” (fig. 6). Tasks of the growing season included maintenance of canals, weeding, irrigation, and protection against locust invasions and other pests, like birds or gazelles. Harvest occurred in spring, often in haste because of the flood. Grain was then carried away, threshed by oxen on threshing floors outside of the flood’s reach, and finally stored in granaries. When the harvest was not destroyed by war, locusts, or flood, this agriculture was very productive. Although absent from the middle Euphrates, date palm was one of the major crops of Babylonia. Palm groves were exploited by specialists who leased them from private owners or the crown. According to *Ana ittišu* and Hammurabi’s laws, the planting of a palm grove required a three-year investment, during which time the palm shoot grew on the mother tree before being planted in an enclosed garden, watered, and cross-pollinated. Before harvest, the gardener was assigned a quota to be delivered to the landlord, often half or two-thirds of the unripened dates.

In 1595 BC, the Old Babylonian dynasty established by Hammurabi fell to a Hittite raid, and Mesopotamian history becomes more obscure. It seems that, around 1500 BC, increasing aridity affected the region. Settlement patterns studied by Adams reveal geographical fragmentation in the alluvium during the Kassite period (1600–1150 BC). Fortified cities dominated the hinterlands of villages and small towns, suggesting fairly extensive and dispersed agriculture. The archives of Nippur reveal that irrigation was concentrated only in the south and east of the city. Mentions of “water drawers” suggest that part of the land was irrigated by bucket irrigation (probably *shādūfs*). Horticulture is also attested at Nippur, Ur, and Dur-Kurigalzu, with gardeners producing spices (among which were coriander and saffron) and dates. On the middle Euphrates, a series of large urban centers with strong communal institutions flourished, vassals first of the Mittani, then of the Hittites (Tell Munbaqa/Ekalte, Tell Meskene/Emar, Tell Hadidi/Azu). They used small-scale irrigation to cultivate cereal fields and orchards, especially vineyards, with a frequent mixture of crops and trees on the same parcel. Archaeobotanical data suggest a negative impact of agriculture on the environment, with a reduction in the natural riverine forest near Emar. Wilkinson’s surveys in the Jezirah show a decrease in the number of settlements and a dispersal into small, short-lived hamlets. Fortified farmsteads were an important feature of the rural landscape during the Mittanian and Assyrian periods (Tell al-Fakhar near Kirkuk; Tell Sabi Abyad on the Balikh). At Yorgan Tepe/Nuzi, texts indicate predominantly dry farming with supplemental irrigation for barley, as well as orchards and vegetable gardens. Although not as productive as the Sumerian and Mari irrigation agriculture, Nuzi’s mixed farming still offered good yields. In the western Jezirah, the middle Khabur had been progressively transformed between the eighteenth and thirteenth centuries BC from a zone of small-scale irrigation agriculture around isolated cities into a full-fledged settlement system articulated on a regional canal running at least from the junction between the Jaghjagh and the Khabur Rivers, down to the vicinity of the Middle Assyrian center of Tell Sheikh Hamad/Dur-Katlimmu. Its archives attest vegetable and spice gardening (beetroot, cumin, mint, etc.), as well as irrigated cereal cultivation with very low productivity. The same applies to fields around the new Assyrian capital Kar-Tukulti-Ninurta, despite the digging of large-scale canals. It seems that, confronted with a drying climate, the Assyrians invested in irrigation to supplement their traditional dry farming, but that the results did not meet their expectations.



Figure 6. Old Babylonian tablet from Mari mentioning “Lever d’astres et calendrier agricole à Mari,” in *Marianum VI. Recueil d’études à la mémoire de A.*





tioning “the Yoke” star, from Hervé Reculeau, J.-M. Durand and D. Charpin, eds., *Florilegium André Parrot*, 2002.

During the early Iron Age (1150–900 BC), aridity worsened, inciting social unrest and famine, which are recalled in Assyro-Babylonian literature and royal inscriptions. By about 950, however, improved precipitation (celebrated in the Annals of Ashur-dan II) and renewed Assyrian power allowed for the political expansion of the Neo-Assyrian empire (911–612 BC). Archaeological remains in the steppe between Aššur and Dur-Katlimmu attest to the planned colonization of the eastern Jezirah, which is celebrated in the Rimah stela of Adad-nirari III (811–783 BC). One of its consequences was the deforestation of the Khabur valley. Regional surveys show the multiplication, from the Upper Tigris valley to the Balikh and Turkish Euphrates, of dispersed, small rural sites that can be identified with the hamlets mentioned in a cuneiform tablet recording the census of the district around Harran in the seventh century BC. Together with declassified satellite images studied by two of Tony Wilkinson’s former students at the OI, Mark Altaweel and Jason Ur, surveys attest agricultural intensification relying both on dry farming and on large-scale irrigation canals around the capitals of Nimrud, Khorsabad, and Nineveh. A spectacular feature of the latter’s irrigation system was the Jerwan Aqueduct, built under Sennacherib (705–681 BC) and studied by Thorkild Jacobsen and Seton Lloyd during the OI’s 1932 excavations at Khorsabad (see image at the beginning of this article, pp. 4–5).

Cuneiform records from Babylonia in the early first millennium BC, studied by OI Assyriologist John A. Brinkman, were complemented by a joint project of the Oriental Institute and the University of Ghent in Belgium, under the direction of Steven Cole and Hermann Gasche. Their analyses suggest that changes in river courses required heavy investments in irrigation, leading to a geographical shift that favored the more westerly branch of the Euphrates, especially around Babylon, Borsippa, and Dilbat. It was accompanied by a re-allocation of fields under royal impulse, and by the reclamation of previously uncultivated land, which usually was allocated to different social groups in a form of land tenure that is attested until the early Achaemenid times. These innovations were part of a series of technological changes at the transition between the Bronze and Iron Ages, which saw the widespread adoption of iron tools, especially plowshares.

In the Neo-Babylonian and Achaemenid periods (626–333 BC), farming became more intensive and produced average yields 25 percent higher than in the previous eras. In a period of better climate with abundant water, stable political conditions, and greater commitment from authorities to invest in agriculture, date gardening was favored because it offered much greater yields in a given surface area than barley, despite requiring more intensive work. Archives from Babylonia, such as that of the Murašû family of Nippur studied by Matthew W. Stolper, reveal the close ties between the main urban families, the temples, and the state even under Persian rule. They also attest to the diverging strategies adopted by different actors. The Ebabbar temple in Sippar held vast estates of date gardening, especially in areas profiting from the waters of newly dug canals, while priestly families from Borsippa owned small plots of date gardens, usually leased to sharecroppers practicing a very intensive horticulture. The surroundings of Nippur and Babylon, on the other hand, were less impacted by intensification, and arable farming still played an important role. The situation of Upper Mesopotamia at that time is poorly known, and parts of Assyria seem to have suffered a long-lasting decline — even if some sites, such as Tell Sheikh Hamad, remained occupied at least until the Achaemenid conquest.

One century after Breasted first coined the term “Fertile Crescent,” Mesopotamian agriculture can be comprehended in all of the complexity of its chronological and spatial evolutions. This we owe to the work of dozens of international scholars who committed themselves to the in-depth understanding of the material cultures of the ancient Near East. The Oriental Institute can be proud of having hosted many of them, and having fostered some of the major breakthroughs in the history of ancient Mesopotamian agriculture.



# FORCED MIGRATION IN THE IRON AGE

## The Tayinat Lower Town Project

By James F. Osborne

*“I settled 5,400 captives of the city Der in the cities Kunulua, Tae, Kulmadara, and Irgillu, cities of the land of Unqi.”*

— Tiglath-pileser III, 738 BC



Figure 1. Families of deportees and captured booty being led from the southern Levantine city of Lachish. From Austen Henry Layard's *Monuments of Nineveh*, 1853.



**S**o concludes a passage by Tiglath-pileser III (r. 745–727 BC), the most aggressive campaigner of the expansionist Neo-Assyrian empire, in which he describes his conquest of the kingdom of Unqi. The residents of Unqi’s cities fared no better than the citizens of Der, as Tiglath-pileser’s annals indicate:

In my fury I captured the city Kunulua, Tutammu’s royal city. I counted his people, together with their possessions as if they were sheep and goats. I reorganized the city Kunulua and placed eunuchs of mine as provincial governors over them.

This deportation and resettlement of the city of Kunulua is merely one episode of hundreds just like it, all part of the Neo-Assyrian empire’s policy of forced migration that they undertook to increase their hegemony over conquered territories and to provide labor to their own cities. According to Assyrian records, 1,210,000 individuals were uprooted from their homes and deported in a systematic policy of forced migration across the Near East (fig. 1). Extrapolating from texts that do not provide figures, the total is over four million (Oded, *Mass Deportations and Deportees in the Neo-Assyrian Empire*, 1979). Although these numbers are surely exaggerated, the scale of the undertaking places it with the largest modern cases of displaced persons — the United Nations reports that the ongoing conflict in Syria has so far created 4.8 million refugees, for example — yet its impact on the structure of ancient Near Eastern society remains largely unexplored. Instead, historians have been content to consider the Neo-Assyrian policy of conquest, social restructuring, and forced deportation as one stage in the long evolutionary trajectory of the region’s empires, from the Akkadian empire of the late third millennium, through the Babylonian, Persian, Hellenistic, and Roman empires of the late first millennium and beyond. What is needed now is to examine the impact the Assyrian conquest had in terms of social transformation, and especially the ways in which these transformations might be identified archaeologically.

In 2014, I started the Tayinat Lower Town Project (TLTP) to explore deportation and forced resettlement through an archaeological lens, complementing the grand scale provided by the texts with an appreciation for the social consequences of imperial subjugation in daily life as indexed in the archaeological record. From the historical passages cited above, for example, we learn that Kunulua had a portion of its population removed for resettlement and replaced with settlers from distant cities, and that the city was “reorganized,” though the specifics of this tantalizing expression are not provided. Both of these phenomena — shifting demographics and changing social and economic life — can be explored archaeologically to test the basic question of whether, and in what ways, forced migration and concomitant cultural contact are articulated on the ground. The TLTP seeks to determine how the forced cultural interactions wrought by deportations affected people’s daily practices and created hybrid social identities, as evidenced especially in the built environment and subsistence strategies before and after the Assyrian conquest.

Today, the ancient city of Kunulua is the 35-hectare archaeological site of Tell Tayinat, located in the Hatay province of southern Turkey (fig. 2). Its historical identification as Kunulua, capital of the Syro-Anatolian kingdom of Unqi (ca. 1200–738 BC), has



Figure 2. Aerial photograph of Tell Tayinat, facing southwest. Note the “invisible” lower town below the modern valley surface to the north and east of the tell, covered by sediments deposited by the Orontes River. Photograph by M. Akar.

been confirmed through epigraphic discoveries at the site. As an important regional capital during the Iron Age, Tayinat was excavated in the 1930s by the Oriental Institute’s own “Syrian-Hittite Expedition,” which conducted explorations at a number of sites in the Hatay’s tell-spotted Amuq valley. (Many of the objects from those excavations are now on display in the Oriental Institute Museum’s Syro-Anatolian Gallery; see fig. 3.) After almost seventy years of archaeological neglect, the University of Toronto has been conducting excavations at the site again since 2004. Both of these projects focused their excavations on the palace compound of the upper city, unearthing a series of monumental buildings including a large governor’s residency built following the Assyrian takeover and a temple with a cache of Akkadian tablets, including an instantly famous version of King Esarhaddon’s succession treaty (Lauinger, “Esarhaddon’s Succession Treaty at Tell Tayinat: Text and Commentary,” *Journal of Cuneiform Studies* 64 (2012):87–123).

By contrast, the TLTP evaluates Kunulua’s large and mostly unexplored lower city, shifting the archaeological gaze from Kunulua’s wealthiest and most powerful citizens to the regular individuals who made up the majority of the city’s population. It is to this quarter of the ancient city that those captives from Der would have been settled, and it is likely from this neighborhood that the original local inhabitants were deported. In other words, the lower town at Tayinat presents us with a unique opportunity to explore the forced migration archaeologically at a historically identified site that we know to have experienced deportation and repopulation. If the archaeological signature of deportees is to be found, this is where it will be.

There is one major impediment to archaeological research at Tell Tayinat’s lower town: the archaeological deposits are under the modern surface of the valley, buried by sediments deposited by the annually flooding Orontes River just a few hundred meters away. Today a visitor to Tell Tayinat sees the 20-hectare upper mound, or tell, sticking up from the flat valley floor, and has no



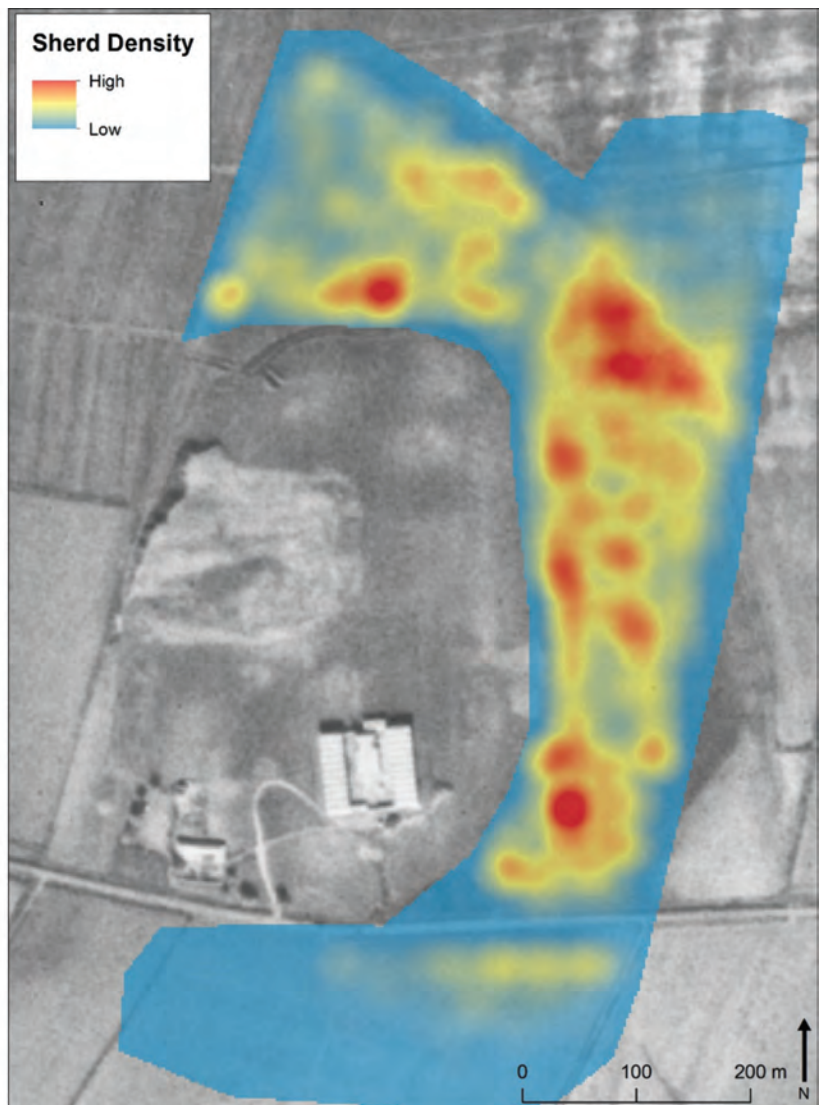


Figure 3. Left: CORONA satellite image of Tell Tayinat. Note the outer city wall and lower town clearly visible, unlike in Figure 2. Right: density map of the ceramics collected from the surface of the lower town by the Tayinat Lower Town Project.



Figure 4. Left: statue fragment, likely from the head of a monumental royal or divine statue, found by the Tayinat Lower Town Project. Right: a monumental royal statue from Tell Tayinat on display in the Oriental Institute Museum.



idea that it is surrounded by an additional 16 hectares of settlement that is now as much as 3 meters below the valley's surface.

Nevertheless, the lower town of Kunulua was not entirely unknown before the TLTP began. The 1930s excavations exposed a city gate in the outer fortification wall. In the 1960s and 1970s, the United States' Cold War-era CORONA spy-satellite program took photographs of the Hatay, in the process capturing Tell Tayinat in its lens. When these images were examined by archaeologists of the renewed excavations, they noticed the outer fortification wall clearly visible in the image, and how it outlines the extent of the lower town (fig. 3, left). In addition, magnetometry surveys conducted by Stephen Batiuk and Charly Bank of the University of Toronto identified amorphous, but nevertheless obvious, indications of buildings and streets in this area. Other than these modest undertakings, however, the lower town lies in total neglect compared with the monumental buildings of the city's acropolis.

It is common practice in contemporary Near Eastern archaeology to begin a new project with a detailed site survey before launching directly into excavations. This is the case for one primary reason: the objects on the surface of a site generally correlate quite closely to the nature of the actual archaeological contexts below. For example, finding a dense concentration of first-millennium BC ceramics on the surface of one part of the site, and a light concentration of third-millennium BC ceramics on the surface of another, likely means that if archaeologists were to excavate these areas they would find dense first-millennium settlement in the first area, and light third-millennium occupation in the second. Inevitably, the resolution of data collected in survey is much coarser than the fine-grained data that one generates through excavation. But because excavation is such a costly and labor-intensive endeavor, surface survey provides a fast and inexpensive way to characterize an entire site in general terms.

The TLTP spent the 2014 and 2015 field seasons conducting one of the most high-resolution, intensive surface surveys of any archaeological site in the ancient Near East. Using a cartographic system known as the Universal Transverse Mercator, a virtual grid was overlaid on top of the lower town, and 10 × 10-meter collection units were placed every 20 meters such that twenty-five percent of the surface of Tayinat's lower town was surveyed. Over two summers, the TLTP collected surface finds from 456 of these survey units. In total, we found just under 30,000 ceramic sherds and 304 objects, meaning that the surface of the site is covered by an astonishingly dense blanket of material culture (fig. 3, right).

With such a large sample of data, it is possible to make concrete statements about the nature of settlement in the lower town of Tell Tayinat that point toward a number of productive avenues for future research, especially excavation targeted at the larger research question of forced migration. The first and most obvious of these is that the large area to the north and east of Tayinat's main mound is indeed a large area of ancient settlement. This much was already indicated by the satellite imagery, and now it has been proven beyond a doubt. Even more significant for the purposes of understanding the Neo-Assyrian forced migration event is the fact that nearly all of the 30,000 sherds we collected date from roughly 900 to 600 BC — that is, immediately before

and after the 738 BC conquest of Tiglath-pileser III. Tayinat's lower town is thus chronologically ideally suited to explore this research agenda since there are no later time periods lying above the targeted eighth and seventh centuries BC that would have to be excavated before reaching the desired period.

At the same time, mapping the artifact coverage across the lower town reveals a number of interesting patterns. For one thing, settlement was not evenly distributed across the area. On the contrary, there are neighborhoods where a lot of people were concentrated in a small area, and others that must have been sparsely populated since far fewer objects were on the surface. This discovery is extremely helpful in determining the most productive locations for future excavations. Another fascinating detail from this distribution map is how few sherds were found on the ground even just a few meters beyond the city wall visible in the satellite imagery. Remarkably, despite almost 3,000 years of continuous agricultural activity (today the fields are occupied by rows of cotton and corn), millennia of plowing hardly budged the artifacts. What this indicates is that the locations of the artifacts accurately correspond to the archaeological features below the surface.

However, the TLTP surface survey raised a number of intriguing questions as well. For one thing, we recovered two fragments of a monumental basalt statue. One is unidentifiable, but one clearly depicts the curly hairstyle that was used on divine and royal statues of this period (fig. 4, left). In fact, the pattern is highly similar to the hair on the contemporary statue from Tell Tayinat, excavated in the 1930s and currently on display in the Oriental Institute Museum (fig. 4, right). The presence of an elite statue in the lower town suggests that perhaps the settlement here was occupied, at least in part, by wealthier citizens than we had assumed, a finding that is supported by a sector of the lower town that produced a disproportionately large quantity of elite ceramic vessels imported from Cyprus.

Perhaps more confounding is the remarkably consistent nature of the ceramic assemblage. Contrary to what one might expect, the deportation and resettlement of Kunulua that took place in 738 BC apparently had little to no noticeable effect on the pottery we found. Given that the people who were made to settle here were from regions far removed from the city, one would expect that new types of pottery would have arrived with them. However, the local ceramic traditions, characterized especially by large burnished platters that are covered in a thick red slip, appear to have continued more or less unchanged.

How to explain this discrepancy? One option might simply be that the historical texts exaggerated Kunulua's deportation and forced settlement more than we might have guessed, or even fabricated it entirely. However, research into contemporary forced migration by anthropologists suggests that in fact deportees rapidly produce material culture identical to that of their new surroundings for a variety of reasons. That being the case, it might be a more productive line of research to examine in detail the *way* objects were made as opposed to the way they *looked*. These are precisely the types of questions that will hopefully be answered as the TLTP transitions to the excavation stage of the project in future seasons.

# ARTIFACT HIGHLIGHT

## Persepolis' Precious: A Striding Lion(?) Pendant

By Kiersten Neumann

From 1931 to 1939, the Oriental Institute Persian Expedition worked at the site of Persepolis, one of the best-preserved dynastic centers of the Achaemenid Persian empire (550–330 BC). The goal of the project was to restore and preserve the stone architecture and sculptural reliefs of the site's royal buildings atop the great terrace. The expedition also uncovered among the monumental ruins much smaller yet equally noteworthy artifacts that ranged from utilitarian and administrative types — for example, ceramic vessels, seals, and sealings — to items of personal adornment, such as beads, pendants, and pins. Many of these objects were partially destroyed or suffered fire damage as a result of the sacking and burning of the site by Alexander the Great and his troops in 330 BC, while objects of greater prestige and value were taken as booty. What survives provides important material evidence of Achaemenid culture and society.

This small stone amulet of a quadruped, measuring a mere 7 millimeters in height, is one of the more fortunate of this group when it comes to preservation. Its surface retains distinct features of its craftsmanship, including the animal's protruding ears and its striding legs. Also unmistakable is the natural beauty of the fine-grained quartz of which it was carved — a vibrant orange-red band at the top succeeded by bands of grayish white, pinkish purple, and brownish red, some areas more translucent than others. The fact that this object was carved from such a semiprecious, exotic stone, the chemical signature and physical characteristics of which suggest that it is agate, attests to its value and prestige. Agate would have been obtained from mines located in the volcanic areas of present-day Iran and Central Asia. Its hardness suggests that a skilled craftsman and good tools were necessary in order to fashion this pendant. The hole that runs through the object's center would have allowed for it to be strung together with other beads and pendants made of similarly prestigious materials, many of which were considered to have protective, amuletic properties, including carnelian, lapis lazuli, coral, and shell, examples of which were also recovered from the terrace at Persepolis.

The type of quadruped represented by this amulet is not altogether clear; however, drawing on Achaemenid visual culture and royal ideology, a likely candidate is the lion. Striding lions are known from Achaemenid-period seals and gold plaques, striking examples of which are also on display in the Oriental Institute Museum Persian Gallery. The monumental stone reliefs of Persepolis show striding lions in procession — a message of the imperial power and prosperity of the Achaemenid empire. Lion cubs are also present at Persepolis, both in a scene from the staircase reliefs of the Apadana (audience hall), where a pair is being brought to the king as a gift by tribute bearers, and in a doorway relief from the Palace of Darius, which shows lion cubs in the arms of figures with daggers held at their sides. Perhaps this semiprecious stone pendant was meant to similarly represent a lion in its youth.



### DESCRIPTION

Artifact: Stone animal pendant

Material: Agate

Origin: Persepolis, southwestern Iran

Date: Achaemenid period (550–330 BC)

Dimensions: 7 H x 17 L x 8 W mm

OIM Registration Number: A19589 (D. 28257)

Location: The Robert and Deborah Aliber Persian Gallery

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Photo credit: David Turner

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Teachers participate in curriculum discussion. All photos by David Turner Photography.

For more information and update about the program, visit [oi.uchicago.edu/teachercohort](http://oi.uchicago.edu/teachercohort).

# THE GALLERY ENHANCEMENTS PROJECT: CONSERVATION'S ROLE

by Laura D'Alessandro and Alison Whyte

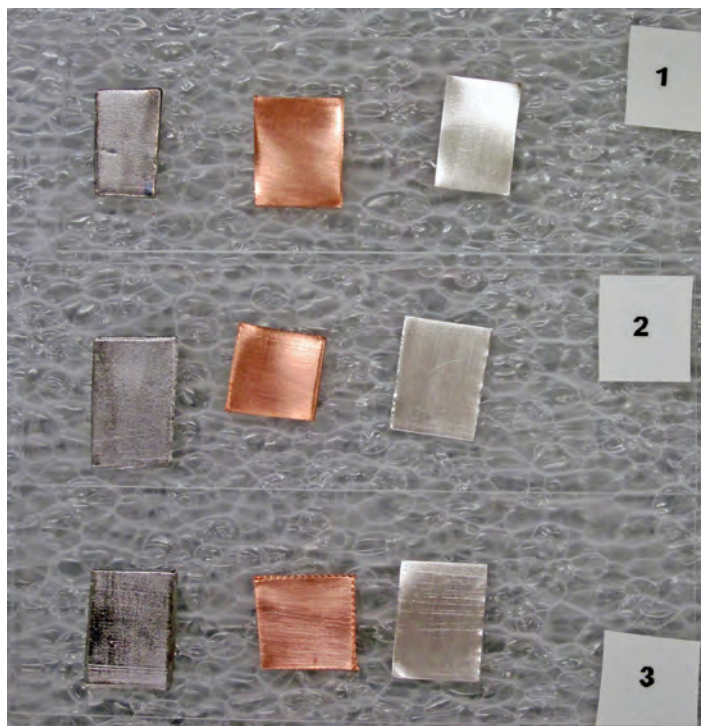
Conservation's role in the Museum is often invisible to the visitor and researcher alike; yet, now well into the second year of the Gallery Enhancements Project, the work carried out by the Conservation Department is integral to the process. Generously funded in part by an anonymous donor, this project is providing new display cases to replace our aging 1930s case furniture and allowing for an update and refresh of the displays, as well as less obvious improvements. Each display case is its own enclosed world, and the objects that it houses have specific needs and requirements that must be met in order to ensure each one's preservation. To achieve this goal, a great deal of work is taking place behind the scenes.

## POLLUTANT TESTING

It is well understood that pollution has a negative impact on the environment; however, pollutants can cause a number of conservation problems for museum objects as well. For example, sulfur-containing compounds can tarnish silver objects, and acidic vapors can result in the formation of disfiguring corrosion products on lead and copper alloy objects as well as damaging salt efflorescence on ceramics and stone. If materials containing these damaging compounds are used in the enclosed environment of a museum display, the concentration of pollutants can rise to dangerous levels in a relatively short period of time. A central objective of the preventive conservation program at the Oriental Institute is the limitation of the collection's exposure to damaging pollutant compounds through the assessment and control of

the materials used inside both our storage environments and our display cases. As a first level of control, the display-case manufacturers were vetted for their adherence to the strictest controls and highest standards in display-case manufacture. All of the materials that are used in the construction of their furniture must meet the most stringent standards in providing an inert environment. The Gallery Enhancements Project also entails the replacement of display materials used *within* our exhibits, including new fabrics, labels, and, in some instances, mounts. While we specify that only non-reactive materials be chosen for use, we also carry out our own tests to independently verify the manufacturers' claims of inertness to ensure the protection of the collection.

The Oddy Test is an accelerated aging test used to assess materials slated for use in museum displays. A sample of the material being tested is placed in a container along with a small amount of water and freshly polished coupons of copper, silver, and lead. This set-up, minus the test material, is duplicated in a second container, which acts as a control. Both containers are placed in an oven and heated to 60 degrees Celsius for twenty-eight days. At the conclusion of the test, the metal coupons from the test and the control containers are inspected and assessed. If no difference can be seen between the two sets of metal coupons, the material is approved for use. We are also employing a modified version of the Oddy Test to assess the interior of the new display cases themselves. Sets of polished metal coupons are placed within the new display cases, and a separate set, which acts as a control, is situated in the gallery environment. At the conclusion of testing,



Above: Oddy test of fabric (left) and control (right).  
Right: Coupons placed in the display cases (1 and 2) compared to a set of control coupons (3).



the test and control coupons are compared to ensure that the cases themselves are not generating pollutants.

## CONDITION ASSESSMENTS AND CONSERVATION TREATMENTS

The de-installation of each display case provides an opportunity for Conservation to carry out a condition assessment of each object within it. All the objects in the museum galleries have undergone a rigorous assessment to confirm their suitability for display, and if necessary they have received conservation treatment before being placed on permanent display. But despite our best efforts, there will be minor changes in condition over the years. While the majority of objects can return to exhibit with no intervention, some do require minor cleaning, stabilization, or repair. For example, OIM E16741 and E23196.11 were both treated prior to being re-installed in their display cases in the Nubian Gallery. Portions of the unglazed surface of E16741, a faience tile from Medinet Habu, were found to be loose and in danger of being lost. A small area of painted decoration on E23196.11, a painted animal skull from Adindan, was adhered back in place. Even the metal objects are not immune. Some of our copper alloy objects have required treatment to address small areas of active corrosion. In addition to these treatments, the mounts that support the objects are being assessed, and, where necessary, we are working with Erik Lindahl and the rest of the Prep Shop to make improvements to minimize wear and tear on the collection.

## MATERIALS IDENTIFICATION

An important component of Conservation's work is the identification of materials that make up an object. For decades,

archaeologists and other researchers identified stone, metal, and other raw materials that were used to create the objects in our collection based on the materials' physical (visible) characteristics. And these scholars were able to do an amazing job with little or no scientific support. As materials science has grown and provided us with the tools to accurately identify these materials, though, we are taking the opportunity to double check many of these sometimes questionable designations. Using the Bruker Tracer III SD, the OI's hand-held x-ray fluorescence (XRF) spectrometer that allows us to identify the elemental composition of artifacts, we are able to accurately identify many of the objects within our collection in a totally non-destructive manner. A wonderful example of this is the cartonnage head covers. Using the Tracer, we were able to confirm that gold was used in the decoration and to determine its impurities as well as identify the elements used to achieve the reds, blues, and greens in the painted decoration. We have used the Tracer to distinguish pewter and electrum from silver, differentiate among the various types of copper alloys, and tell limestone from gypsum. The list is fairly extensive and will continue to grow as we work through the collection.

While the Tracer allows us to make many certain identifications, it does have its limitations. We are sensitive to this, and the labels will reflect any uncertainties by using more general terms such as "stone" when the accurate identification of the type of stone, for example, is not possible by XRF spectroscopy alone.

We hope that the visitors to our museum will look upon our newly refurbished galleries with an enhanced appreciation of the behind-the-scenes efforts of the museum staff to protect and preserve our collections for future generations.



Left: OIM E16741, a faience tile from Medinet Habu.

Middle: OIM E23196.11, a painted animal skull from Adindan, Nubia, after treatment.

Right: OIM E7177, a cartonnage head cover, is analyzed using the Bruker Tracer III SD XRF spectrometer.

## INTRODUCING JEAN M. EVANS, THE NEW CHIEF CURATOR AND DEPUTY DIRECTOR FOR COLLECTIONS AND EXHIBITIONS

By Emily Teeter



**O**n September 1, the Oriental Institute welcomed Jean Evans as the new chief curator of the Museum and deputy director for Collections. She received her PhD in art history and archaeology from New York University in 2005. Jean is already known to many at the Oriental Institute, having been a research associate here since 2008, and assisting in the completion of the final

publication of the Oriental Institute excavations of the Inanna Temple at Nippur.

For the last three years, Jean served as a postdoctoral fellow in the Munich Graduate School of Ancient Studies at Ludwig Maximilian University. From 1999 to 2008, she was a curator in the Department of Ancient Near Eastern Art at the Metropolitan Museum of Art. She was a co-organizer of the very important exhibit, *Beyond Babylon: Art, Trade, and Diplomacy in the Second Millennium BC*, and she co-edited its catalog, which has become a standard reference on the subject. Jean is also the author of the highly acclaimed *The Lives of Sumerian Sculpture: Archaeology of the Early Dynastic Temple* (Cambridge University Press, 2012), which offers new interpretations of Sumerian statuary.

She has been the recipient of fellowships from the Getty Foundation, the American Academic Research Institute of Iraq, the Warburg Institute, the German Archaeological Institute, and other institutions.

Jean is excited to be at the Oriental Institute in the midst of the complete renovation of the museum galleries, and she brings many valuable ideas about how the museum can be improved and better facilitate research for our faculty and for scholars throughout the world. Jean lives in Hyde Park with her husband Vincent van Exel and their two young daughters. We are all very happy to welcome Jean back to the Oriental Institute.

## UCHICAGO GRAD AND FORMER STUDENT SECURITY GUARD INCORPORATES VIRTUAL TOUR INTO HIGH SCHOOL TEACHING

By Jennie Myers

**C**arl Cardozo, AM'16 in social sciences, is using his experience as a student security guard at the Oriental Institute to enhance his teaching at Gonzaga College High School in Washington, DC. In his course, "World Cultures" — essentially world history until about 800 AD — he has been incorporating the OI's resources into discussions about Persia, Sumer, Mesopotamia, Assyria, and Egypt. "It's actually been a huge help in my class this year," says Cardozo. "A big part of my course's pedagogy has been to 'think like an archaeologist,' and to encourage my students to think of themselves as 'discoverers' of information about antiquity. Being able to 'step' into the museum has been invaluable."

Cardozo goes on to explain that the appeal of this non-traditional approach is partly due to the students hearing that he studied archaeology in college, "and they immediately come to the conclusion that I'm some kind of Indiana Jones treasure hunter. I've played that up a bit, sending the students on research hunts into the collections at the OI and the Penn Museum's digital resources to look for answers to 'mysteries' I pose."

According to Cardozo, "the OI virtual tour itself was most useful during our Assyria section, in which I had them 'walk' into the Khorsabad Court to imagine what Sargon wanted his guests to feel upon entering, and tied the lesson into a discussion of recent attempts by ISIS to destroy artifacts. Students were incredibly receptive to this approach, and were even anxious about the fates of related artifacts, posing many questions about the preservation of antiquities."

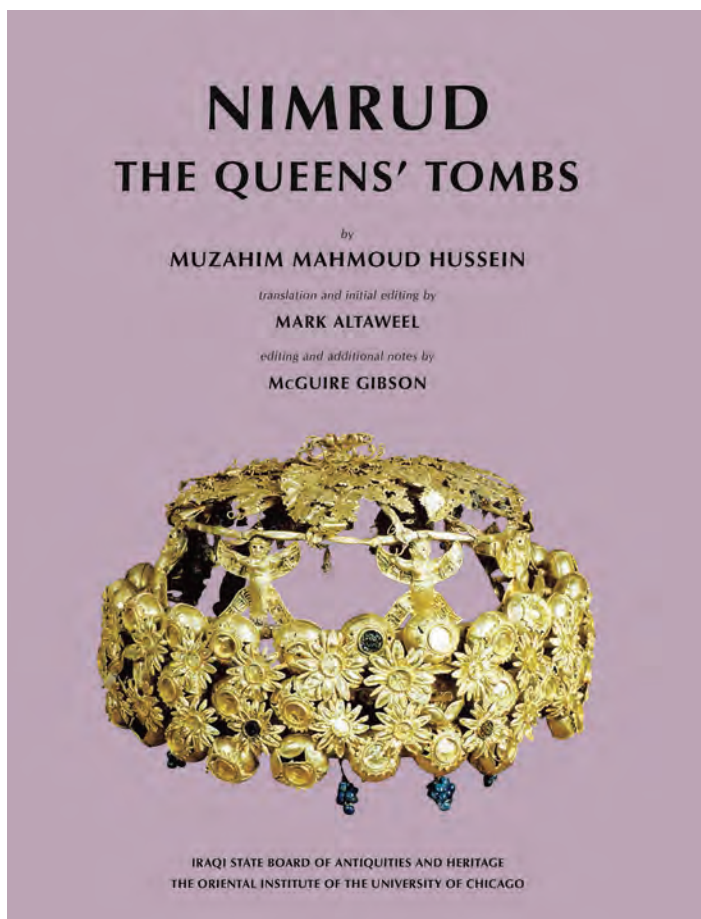
While Cardozo credits the rigorous nature of the program at Gonzaga High School and the type of student that it attracts for the success of this approach, he believes that "a museum can impart an innate sense of adventure as a physical, real reminder of the ancient world and the people who lived in it."





# NEWS

## NEW PUBLICATION



Muzahim Hussein's 1989 discovery of tombs of Neo-Assyrian queens in the palace of Ashurnasirpal in Nimrud (Kalhu/Calah) was electrifying news for archaeology. Although much is known of the Assyrian kings (8th/9th century BC), very little was known about the queens, with the exception of semi-mythical Semiramis. Now, for the first time, not only were actual remains and burial objects of Assyrian queens discovered, but also names and attempts through curses to protect the burials. Elaborate gold jewelry and other items in the tombs rivaled in quality and quantity that found in Egyptian royal tombs. A short scholarly publication of a few items, as well as limited coverage in the world's press, gave only hints of the importance of the objects in the tombs. Planned international exhibitions of the treasures from the tombs had to be canceled due to war and sanctions. *Nimrud: A City of Golden Treasures* by Hussein and Amer Suleiman (1999), published under extraordinarily difficult conditions, could not do justice to the objects. The present volume, a joint publication of the Iraqi State Board of Antiquities and Heritage and the Oriental Institute, is a new version of the finding of the tombs and their contents, giving much additional information derived from Hussein's continued analyses of classes of artifacts, accompanied by numerous full color plates.

- Title: *Nimrud: The Queens' Tombs*
- Author: Muzahim Mahmoud Hussein, with Mark Altaweel and McGuire Gibson
- Series: Oriental Institute Miscellaneous Publications
- Format: Hardback, 9" x 11.75"
- Price: **\$89.95**
- Available online at <http://oi.uchicago.edu/research/publications/misc/nimrud-queens-tombs>
- Purchase a hard copy through Casetate Academic: <http://www.oxbowbooks.com/dbbc/nimrud.html>



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# VOLUNTEER SPOTLIGHT

## STEPHEN SCOTT

By Shirlee Hoffman

**S**hirlee, Oriental Institute volunteer, sits down to interview volunteer Stephen Scott.

### 1. How did you become interested in volunteering at the Oriental Institute? How long have you been a volunteer?

After retiring from corporate life, I was looking for some activity that would allow me to explore an area where I had little experience and knowledge. Through my volunteer responsibilities at Misericordia Homes and the condominium board, I was able to be a supporter of those organizations. The thought of the intellectual stimulus of learning something new was very appealing. Four years ago I remembered that the Oriental Institute was not too far away from my MBA classes at the Graduate School of Business [now Chicago Booth], and the Museum's website invited individuals interested in becoming volunteers to complete an application. Terry Friedman interviewed me about becoming a docent and suggested that the introductory Egyptian lecture videos would be a good place to start.

### 2. Did you have any interests or training in the ancient Near East?

I didn't have any training in the history of the ancient Near East, and my interest in the area is a recent pursuit. My undergraduate degree from MIT was in physics, and my business career was weighted toward quantitative applications and systems development, with an equal number of years at each of two very different Chicago organizations. At Inland Steel Company, I implemented one of the first computerized financial forecasting models in a manufacturing environment; at Blue Cross Blue Shield Association, I developed a mathematical measure for evaluating the inter-plan claims processing performance of all Blue Cross/Shield plans nationwide. My knowledge of the ancient Near East consisted of what the nuns taught me very effectively in sixth grade!

### 3. What have you done at the OI since you became a volunteer? What do you do now?

I've served as a Tuesday/Wednesday morning docent providing highlights tours to groups ranging in age from middle school



students to seniors. My other responsibility is, with other volunteers, to serve as a faculty assistant on a project whose goal is to build a database consisting of several thousand digitized and labeled images from slides taken at an Anatolian site named Hacinebi in southeastern Turkey. In 3700 BC this was a colony settled by traders from Uruk, a city in ancient Sumer. Archaeologists have found this colonization model worth studying because it was a distinct Mesopotamian culture located within the dominant Anatolian community.

### 4. What do you particularly like about being a volunteer?

What I like most about being an OI volunteer is the opportunity to meet so many welcoming, interesting individuals who are affiliated with the museum. This group includes fellow docents, faculty, and museum staff. It has been enriching to learn how archaeological methods have been used to excavate and study those sites that help us to understand and track the rise of civilizations from ancient times.

### 5. What has surprised you?

It's surprising that a knowledge of so many academic disciplines is required to put together the puzzle pieces of the ancient Near East. These disciplines include, among others, modern and extinct languages, economics, science, engineering, mathematics, and religion. Although researchers focus on a somewhat narrow topic, they must draw on their skills in multiple areas to reach conclusions that can meet scholarly review standards.

### 6. What would you say to someone who is thinking of volunteering at the OI?

I would strongly recommend the OI as a volunteer activity. The Institute is a manageable size that allows one to focus on achieving an understanding of the origins of civilization and to communicate this information to visitors. As a docent you are able to use the museum's excellent timeline and sequential layout of artifacts to provide visitors with a visual supplement to their knowledge in this area. Also, it's cool to be in the vibrant academic atmosphere of the University of Chicago campus!

# IN THE FIELD

The Oriental Institute has sponsored archaeological and survey expeditions in nearly every country of the Near East. There are projects currently active in Egypt, Turkey, Israel, and the West Bank. These completed and ongoing excavations have defined the basic chronologies for many ancient Near Eastern civilizations and made fundamental contributions to our understanding of basic questions in ancient human societies, ranging from the study of ancient urbanism to the origins of food production and sedentary village life in the Neolithic period. Follow the upcoming projects through their websites.

## FIFA, JORDAN

**Landscapes of the Dead Project**

**March 12-17, 2017**

**Directors: Morag M. Kersel and  
Austin C. Hill**

<http://followthepotsproject.org/>



## KABUL, AFGHANISTAN

**Oriental Institute-National  
Museum of Afghanistan  
Partnership and  
Cultural Heritage  
Protection Work  
Ongoing**

**Director: Gil Stein**

**Field Director:**

**Alejandro  
Gellego**

[http://oi/  
research/projects/  
afghanistan.html](http://oi/research/projects/afghanistan.html)



## LUXOR, EGYPT

**Epigraphic Survey**

**October 15, 2016-April 15, 2017**

**Director: Ray Johnson**

[oi/research/projects/epi/](http://oi/research/projects/epi/)



## UPPER EGYPT

**Mission at Dendara**

**November 12-December  
20, 2016**

**Director: Gregory Marouard**

[ifao.egnet.net/archeologie/Dendara/](http://ifao.egnet.net/archeologie/Dendara/)

If you're interested in supporting one of the Oriental Institute's archeology field projects, please contact Brittany Mullins, associate director of development, at 773.834.9775, or email her at [bfmullins@uchicago.edu](mailto:bfmullins@uchicago.edu).



# PROGRAMS & EVENTS

## WINTER 2017



# ADULT PROGRAMS

## WINTER EGYPTIAN CLASSIC FILM SERIES

Free.  
*Registration not required.*

Escape the cold, get a cup of Egyptian tea, and cozy up in the atmospheric Breasted Hall at the Oriental Institute for classic Egyptian films on Wednesday nights in January and February. A notable scholar introduces each film to provide context and discuss how the film was received by critics and the public.

Seating is first-come, first-served. All films are shown in Arabic with English subtitles. Come early to visit the galleries and join our pre-screening programs: hot tea and Egyptian sweets are served at 5:15pm, and film introduction starts at 5:45pm. Screening begins at 6pm.

### ***Cairo Station (Bab el hadid)***

**Wed, Jan 11**  
*1958. 1h 35min. Directed by Youssef Chahine.*

### ***The Open Door (El bab el maftuh)***

**Wed, Jan 25**  
*1964. 1h 44min. Directed by Henry Barakat.*

### ***Beware of Eve (Ah min hawaa)***

**Wed, Feb 8**  
*1962. 1h 33min. Directed by Fatin Abdel Wahab.*

### ***Terrorism and Kebab (Al-irhab wal kabab)***

**Wed, Feb 22**  
*1992. 1hr 45min. Directed by Sherif Arafa.*

This film series is co-sponsored by the Consulate of Egypt in Chicago, the Oriental Institute, the Department of Near Eastern Languages and Civilizations, and the Center for Middle Eastern Studies of the University of Chicago.

**ADULT PROGRAMS** meet at the Oriental Institute unless otherwise noted.

**REGISTER** To register, visit [oi.uchicago.edu/register](https://oi.uchicago.edu/register)  
For assistance or more information, email [oi-education@uchicago.edu](mailto:oi-education@uchicago.edu).

Register for these lectures at [oimembersevents.eventbrite.com](https://oimembersevents.eventbrite.com).

## GALLERY TALKS

### **The Organization of Irrigated Agriculture in Southern Mesopotamia**

**Thu, Feb 2, 12:15-1pm**  
Free.  
*Registration not required.*

Stephanie Rost, postdoctoral fellow at the Oriental Institute, discusses the modes of ancient agricultural production in southern Mesopotamia. We learn about how the Euphrates and Tigris Rivers were controlled to provide irrigation water and be protected from floods. In addition, we investigate the administrative system behind the organization of irrigation and agricultural tasks in Mesopotamia.

### **Private Lives of Ancient Egyptians**

**Thu, Mar 2, 12:15-1pm**  
Free.  
*Registration not required.*

Walking through the Egyptian Gallery, you are surrounded by images of people. It is astounding how much we know about some of these individuals. In this gallery tour, Egyptologist Emily Teeter “introduces” you to some of these people and tells you what we know about their lives.

## TOURS/ACCESS PROGRAM

### **Archaeology in Five Senses**

**Fri, Feb 10, 2-3pm**  
Free.  
*Registration required.*

In this multisensory tour of the Mesopotamian Gallery, learn about five-senses archaeology in two ways: first, the actual physical practice of archaeology, and second, the ways archaeological theory has tried to come to grips with the reconstruction of the past as it was experienced by sensing human beings.

### **Verbal Imaging Tour**

**Fri, Mar 10, 2-3pm**  
Free.  
*Registration required.*

Experience the Oriental Institute Museum with a trained guide who will give detailed verbal descriptions of the artifact highlights in the permanent galleries. Designed for partially sighted and blind audiences. Object replicas are also available so participants may touch and feel the rich material culture housed at the Oriental Institute.



# ADULT PROGRAMS

## COURSES

### On-site Courses

#### Archaeological Reconstruction Drawing Workshop

**Sat, Mar 11, 1-3:30pm**

General \$25, members \$20, UChicago Arts Pass \$8

*Registration required; register by Mar 5.*

Spend a Saturday afternoon creating a unique technical drawing of an ancient Egyptian pottery sherd from the Old Kingdom under the guidance of Natasha Ayers, PhD candidate in Egyptian archaeology. Students also learn how archaeologists use pottery and pottery drawings in their research. No previous experience is necessary. Supplies will be provided.

#### Art and Science of Museum Conservation (4 weeks)

**Thu, Jan 19–Feb 9, 5:30–7:30pm**

General \$235, members \$195, UChicago Arts Pass \$60

*Registration required; register by Jan 12.*

Have you ever wondered why the lights are so low in museum exhibits? Or why you can't bring food into museum galleries? Or what goes on behind the scenes to keep a priceless ancient collection available for future generations to enjoy? Learn about the history of art conservation and how the discipline has evolved over time. Explore preventive techniques used by conservators to stop, or at least delay, the deterioration of art objects. Gain insight into the cutting-edge analytical techniques used by conservators to examine works of art. Finally, get a glimpse of the step-by-step process of a typical conservation treatment.

Instructor: Alison Whyte, associate conservator, Oriental Institute Museum

#### Technology in Ancient Egypt (4 weeks)

**Wed, Mar 8–29, 6–8pm**

General \$235, members \$195, UChicago Arts Pass \$60

*Registration required; register by Mar 1.*

The ancient Egyptians were master craftsmen, artisans, and engineers. In this four-part course, students learn about the tools, materials, and techniques that were used to create furniture, jewelry, stone vessels, statues, temples, and tombs. Each lecture is followed by a 30-minute gallery tour focusing on examples of the material covered in the course. The final meeting involves hands-on activity testing and using replicas of ancient tools.

Instructors: Emily Teeter, PhD, research associate, Oriental Institute; and Larry Lissak, Oriental Institute volunteer

#### Mesopotamian Mythologies (6 weeks)

**Sat, Mar 11–Apr 15, 10am–12pm**

General \$350, members \$295, UChicago Arts Pass \$88

*Registration required; register by Mar 5.*

The myths and legends of Mesopotamia are rich in gods, goddesses, demons, monsters, heroes, and kings. In this course we explore a mythological literature that spans millennia and gives us some of the earliest descriptions of the creation of the world, the Great Flood, and the journey to the underworld. We discuss the many deities of Mesopotamia and their exploits, and read the stories of Gilgamesh and other great heroes. We also attempt to situate this literature in the wider context of Mesopotamian history and religion and discuss its legacy and influence on other traditions, including the Hebrew Bible.

Instructor: Sam Harris, PhD candidate in Mesopotamian archaeology, Department of Near Eastern Languages and Civilizations

#### Hybrid Course

#### Intensive Advanced Middle Egyptian Grammar (16 weeks)

**Online: Jan 9–Apr 24**

**On-site: Thu, Jan 12–Apr 27, 5:30–7:30pm**

General \$560, members \$495, UChicago Arts Pass \$140

*Registration required; register by Jan 2.*

This course covers the script and grammar of the classical phase of the ancient Egyptian language. Each week we cover one lesson from the textbook and review the exercises in class. Each class focuses on grammatical analysis and discussion of exercises and readings from short historical, literary, and religious texts. This college-level course requires frequent use of grammatical terminology. By the end of the course, students will have completed a full introductory course in Middle Egyptian that prepares them to read the vast corpus of Middle Egyptian texts. This is a hybrid course and has simultaneous online and on-site sections.

Instructor: Foy Scalf, PhD, head of the Research Archives, Oriental Institute



# EDUCATOR PROGRAMS



## ONLINE COURSE

### Investigating Nutrition: The Advent of Agriculture in Mesopotamia (8 weeks)

**Jan 16–Mar 13**

General \$175, members \$135

30 Clock Hours.

Registration required; register by Jan 19.

Includes a copy of *Investigating Shelter curriculum guidebook*.

Learn and apply two well-researched learning models — understanding by design and a concept-based model — to engage in an archaeological inquiry of food and culture. Explore seven Common Core-aligned units that integrate knowledge across subjects: social studies, science, art, literacy, health/wellness, and civic education. The course introduces K-12 educators to a range of interactive methods that allow for close reading of non-fiction texts for content, perspective, and key ideas, while employing the graphics provided to enhance their understanding of the text.

**EDUCATOR PROGRAMS** meet at the Oriental Institute unless otherwise noted.

**REGISTER** To register, visit [oi.uchicago.edu/register](https://oi.uchicago.edu/register).

For assistance or more information, email [oi-education@uchicago.edu](mailto:oi-education@uchicago.edu).



# FAMILY & YOUTH PROGRAMS

## DROP-IN

### Drawing Hour | AGES 5-ADULT

**Sat, Jan 7, 1-2pm**

Free.

*Registration recommended.*

Practice looking closely at art and develop drawing skills. Choose ancient sculptures and pottery to sketch, or grab a drawing worksheet to loosen up and get inspired. All materials are provided, and you are welcome to bring your own sketchbook (only pencil is allowed in the gallery). No drawing experience is necessary.

### Secret of the Mummies | AGES 5-12

**Sat, Feb 25, 1-3pm**

Free.

*Registration recommended.*

Help us prepare our simulated mummy for the afterlife, meet our real mummies, and discover tomb treasures.

### Persian Nowruz Celebration

**Sat, Mar 11, 1-4pm Free.**

Free.

*Registration recommended.*

Celebrate the delight of the coming Persian New Year — Nowruz! Color eggs, visit a Haft-Seen table, hunt the galleries, and take your New Year photo!

This event is sponsored by the Federation of Zoroastrian Associations of North America, the Zoroastrian Association of Chicago, and Iran House of Greater Chicago.

## TOURS & TOTS

### LamaSeuss | AGES 0-8

**Tue, Mar 14, 1:30-2pm**

Free.

*Registration recommended.*

Join us for a pre-Stroller Tour story time! LamaSeuss pairs a classic Dr. Seuss story with an activity inspired by our collection. Perfect for budding baby archaeologists.

### Stroller Tour | AGES 0-ADULT

**Tue, Mar 14, 2-3pm**

Free.

*Registration recommended.*

A light-hearted tour for caregivers and their pre-toddler-age (18 months or younger) children. Experience different learning opportunities with a social component that allows for adult conversation where no one minds if a baby lends his or her opinion with a coo or a cry.

## FAMILY WORKSHOPS

### Introduction to Hieroglyphs | AGES 9-12

**Sat, Jan 28, 1-3pm**

General \$14, members \$10 (1 child + 1 adult); \$7/\$5 each additional registrant

*Registration required.*

Learn some basics of the Egyptian hieroglyphic writing system. By the end of this workshop you will understand some of the principles of reading Egyptian hieroglyphs as well as some key hieroglyphs and phrases that show up on Egyptian artifacts in many museums.

### Junior Archaeologists | AGES 5-12

**Sat, Feb 11, 1-3pm**

General \$14, members \$10 (1 child + 1 adult); \$7/\$5 each additional registrant

*Registration required.*

Let loose your inner Indiana Jones! Children and parents dig into our simulated excavation while learning about the real science of archaeology at the Oriental Institute's Kipper Family Archaeology Discovery Center. Includes an interactive guided tour of the galleries. Fun patches available on-site.

### Mummy Science | AGES 5-12

**Sat, Mar 25, 1-3pm**

General \$14, members \$10 (1 child + 1 adult); \$7/\$5 each additional registrant

*Registration required.*

Get hands-on with our interactive mummy, and learn about organic and inorganic materials and the scientific principles that make mummification possible. Meet a real Egyptologist and see how science can show us what ancient Egyptians looked like using CT scans and 3D printing technology. Includes an interactive guided tour of the galleries. Fun patches available on-site.

**FAMILY PROGRAMS** meet at the Oriental Institute unless otherwise noted. Children under 13 must be accompanied by an adult.

**REGISTER** To register, visit [oi.uchicago.edu/register](http://oi.uchicago.edu/register)

For assistance or more information, email [oi-education@uchicago.edu](mailto:oi-education@uchicago.edu).

# MEMBERS' PROGRAMS



David Turner Photography

## LECTURE SERIES

Oriental Institute lectures are a unique opportunity to learn about the ancient Near East from world-renowned scholars. Lectures are free and open to the public, thanks to the generous support of Oriental Institute members.

Visit us online at [oi.uchicago.edu/programs](https://oi.uchicago.edu/programs) for full descriptions. *Registration recommended.*

**The Origins of Two Provincial Capitals in Upper Egypt: The Two Sister-sites at Tell Edfu and Dendara**

Wed, Jan 4, 7-9pm  
Free.

Nadine Moeller, Oriental Institute,  
University of Chicago

**Economic Growth and Growing Inequality in Times of Empire: The Babylonian Economy in the Sixth Century BC**

Wed, Feb 1, 7-9pm  
Free.

Michael Jursa, University of Vienna

**Persepolis Through Images: The Impact of Visual Documents on the Study of Achaemenid Ruins**

Wed, Mar 1, 7-9pm  
Free.

Ali Mousavi, University of California-  
Los Angeles

## SAVE THE DATE

Wed, Apr 26, 7pm

**The David A. Kipper Ancient Israel Lecture Series**

Matthew Adams,  
Dorot Director, W. F. Albright Institute of  
Archaeological Research

**MEMBERS' PROGRAMS** meet at the Oriental Institute unless otherwise noted.

**REGISTER** for lectures at [oimembersevents.eventbrite.com](https://oimembersevents.eventbrite.com).



# EXHIBITS



## PERSEPOLIS: IMAGES OF AN EMPIRE

**In the Special Exhibit Gallery,  
ongoing**

See the magnitude and grandeur of the ruins at this center of the Achaemenid Persian empire (ca. 550–330 BC) through prints of iconic photographs taken during the Oriental Institute’s Persian Expedition (1931–1939). Quotations from travelers to the site and a multimedia display featuring the architecture of Persepolis and its surrounding topography add dimension and context to this powerful show.

## DRONES IN THE DESERT: ARCHAEOLOGY FROM ABOVE

**In the lower level of the Oriental  
Institute, ongoing**

This photo show explores how aerial perspectives allow archaeologists to detect patterns that may be invisible or unrecognizable from the ground. The exhibit addresses how recent technological developments, coupled with sophisticated software, are creating new and vibrant opportunities for archaeologists to do more with images from the air. The photos illustrate the use of drones at sites in Jordan and Israel for broad-scale archaeological survey of sites, monitoring of landscape change, and mapping of excavations.

## A THREATENED HERITAGE

**Throughout the Museum,  
ongoing**

In the Middle East and North Africa, political instability and conflict have displaced populations and added ever-greater threats to archaeological sites, landscapes, and museums. Destruction and looting of archaeological sites are widespread around the world — not just in the Middle East. This exhibit documents threats to heritage and provides an outlook into possible ways to help prevent further losses and build a stronger future for the past.



THE  
ORIENTAL  
INSTITUTE

The University of Chicago  
1155 East 58th Street  
Chicago, Illinois 60637  
[oi.uchicago.edu](http://oi.uchicago.edu)



THE UNIVERSITY OF  
CHICAGO Arts

## INFORMATION

### MEMBERSHIP

#### YOUR PARTNERSHIP MATTERS!

The Oriental Institute depends upon members of all levels to support the learning and enrichment programs that make our Institute an important — and free — international resource.

As a member, you'll find many unique ways to get closer to the ancient Near East — including free admission to the Museum and Research Archives, invitations to special events, discounts on programs and tours, and discounts at the Institute gift shop.

**\$50 ANNUAL / \$40 SENIOR (65+) INDIVIDUAL**  
**\$75 ANNUAL / \$65 SENIOR (65+) FAMILY**

#### HOW TO JOIN OR RENEW

ONLINE: [oi.uchicago.edu/getinvolved](http://oi.uchicago.edu/getinvolved)

BY PHONE: 773.702.9513

ON SITE: at the Gift Shop

### GENERAL ADMISSION

FREE

ADULTS

*\$10 suggested donation*

CHILDREN 12 OR UNDER

*\$5 suggested donation*

### MUSEUM & GIFT SHOP HOURS

*Closed Monday*

*Sun-Tue, Thu-Sat: 10am-5pm*

*Wed: 10am-8pm*

### THE MUSEUM IS CLOSED

January 1

July 4

Thanksgiving Day

December 25

### ACCESSIBILITY

The Museum is fully wheelchair and stroller accessible. The University Avenue west entrance is accessible by ramp and electronic doors.

### PARKING

FREE parking half a block south of the Museum on University Avenue, after 4pm daily and all day on Saturday and Sunday.

### GROUP VISITS

For information about group visits, please go to:

[oi.uchicago.edu/museum/tours](http://oi.uchicago.edu/museum/tours).



THE UNIVERSITY OF  
**CHICAGO**  
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