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2009 Excavations and Laboratory Work

In the summer of 2009, the Oriental Institute conducted the second field season of excavations in the joint Syrian-American archaeological research project at Tell Zeidan in the Euphrates River Valley of north-central Syria (fig. 1). Gil Stein served as American co-director, while the Syrian co-director was Mr. Muhammad Sarhan, director of the Raqqa Museum. We gratefully acknowledge the support of the National Science Foundation (NSF) and the Oriental Institute, and the generosity of private donors in funding the 2009 fieldwork.

The Zeidan excavations explore the roots of urbanism in Upper Mesopotamia (modernday northern Iraq, north Syria, and southeast Turkey) by excavating a large regional center or

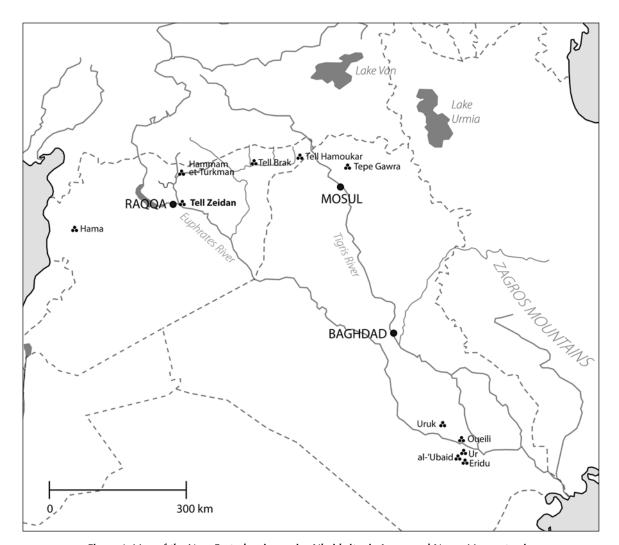


Figure 1. Map of the Near East, showing major Ubaid sites in Lower and Upper Mesopotamia

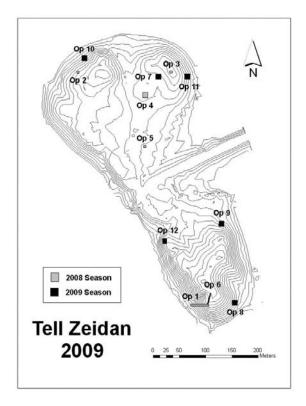


Figure 2. Topographic map of Tell Zeidan showing the 2009 excavation areas

town dating to the Halaf, Ubaid, and Late Chalcolithic 1 and 2 periods in a continuous sequence dating from 5800 to 4000 BC. Tell Zeidan is a large 12.5-hectare site consisting of three mounds enclosing a "lower town," located at the confluence of the Balikh River with the Euphrates River, 5 km east of the medieval and modern city of Raqqa. Because the site was abandoned around 4000 BC (with only a small ephemeral re-occupation in the early third millennium), Tell Zeidan provides an almost unique opportunity to make broad horizontal exposure of an Ubaid regional center in the sixth and fifth millennia BC, the time period that saw the first development of towns, political leadership, community temples, and social stratification. By studying the organization of society at Tell Zeidan in the Ubaid and Late Chalcolithic 1–2 periods, we hope to understand the ways in which these early towns gave rise to the earliest cities and urban civilization of the Near East.

Excavations

Excavations were conducted in eight trenches (called "operations") across the site: Operations 1, 6, 8, 9, and 12 on the south mound (the largest of Zeidan's three mounds); Operation 10 on the north slope of the northwest mound; and Operations 7 and 11 on the northeast mound (fig. 2).

The South Mound

Operation 1: Operation 1 is a 2 m wide step trench oriented east—west along the southwest slope of the southern high mound. The 2008 excavations had reached upper Halaf levels in the westernmost portion of the trench at the base of the mound. In 2009, excavations in the Halaf part of Operation 1 continued in a 2.0×2.5 -meter-deep sounding, conducted by

Figure 3. The deep sounding into the Halaf deposits at the base of Operation 1





Figure 4. Spouted strainer jar with painted and impressed decoration. Operation 1 deep sounding, Halaf period



Figure 5. Hematite mace-head. Only half the mace-head was preserved. The pattern of the drill hole through the center shows that the mace-head was drilled from only one side. Operation 1 deep sounding, Halaf period

Michael Fisher (fig. 3). All deposits within the sounding appear to date to the Halaf, based on the ceramics. The deposits excavated in the deep sounding were a series of outdoor occupation surfaces (sometimes with hearths) alternating with trash deposits. The sounding yielded several complete Halaf ceramic vessels including a spouted strainer jar with impressed and painted decoration (fig. 4), and a secondary burial with a broken hematite polished mace-head (fig. 5). At a depth of 4.35 m beneath the present-day surface at the base of the mound, excavation was halted for safety reasons, due to the risks of working in such a narrow, deep trench. Excavation did not reach sterile deposits. In future seasons we hope to continue excavation in this area and discover whether any earlier occupations underlie the Halaf deposits at Zeidan.

Operation 6: Operation 6 consisted of two 2×3 m soundings (areas "A" and "B") laid out as part of a long trench extending from the top of the mound west-southwest toward the top of the Operation 1 step trench. Operation 1 had been placed 3.0 m below the top of the south mound, so it did not sample the uppermost deposits on the mound. The uppermost sampled deposits in Operation 1 dated to the Late Chalcolithic 1 period. Under the supervision of Abbas Alizadeh, Operation 6 was intended to document the missing uppermost 3.0 m of the south mound stratigraphic sequence.

The uppermost deposits in Operation 6 areas "A" and "B" consisted of a series of three infant burials (two jar burials and one inhumation) and five adult secondary burials consisting of stacked accumulations of disarticulated bone. It is highly unusual to have infants and adults interred together in the same burial area or cemetery inside the confines of a habitation site in the Late Chalcolithic 2 period. Instead, the usual pattern is one where infant jar burials were placed beneath house floors, while adults were buried off-site, presumably in a community cemetery. All the burials apparently date to a late phase of the Late Chalcolithic 2 period, based on the ceramics of the jar burials. The floor surface from which the pits were dug has apparently eroded away by the strong westerly winds that scour the site. The only grave goods associated with these burials were three stone labrets (fig. 6): ZD1879 (associated with adult secondary burial 5), ZD1859 (associated with infant jar burial 2), and ZD1887 (associated with the adult bone accumulation



Figure 6. Stone labrets or lip plugs, worn as an ornament, were found in association with Late Chalcolithic 2 burials (ca. 4200–4000 BC). Operation 6



Figure 7. Cache of 1,090 unbaked clay sling bullets found in trash deposits dating to the Ubaid period. Operation 8



Figure 8. Excavation of Ubaid-period pyrotechnic features — ovens and possibly kilns. Operation 8

in locus 8). The seven burials were all dug into earlier Late Chalcolithic 2 domestic architecture. Beneath the level with the Late Chalcolithic 2 domestic architecture were Late Chalcolithic 1 deposits with the characteristic flint-scraped beaded lip bowls. These deposits established the stratigraphic link to the adjacent Operation 1 and completed the sequence by demonstrating that the south mound at Tell Zeidan was apparently abandoned at the end of the Late Chalcolithic 2 period.

Operation 8: Operation 8 was excavated by Jean Evans and Lise Truex as a 10×10 m trench on the lower slope in the southeast corner of the south mound. We encountered Ubaid architecture along the western baulk immediately beneath the loose surface deposit on the mound slope. The architecture consisted of the eastern portion of a small mudbrick room, along with a corridor and a surrounding mudbrick enclosure wall with a doorway and door socket. All associated ceramics were Ubaid plain wares and painted wares, including well-painted fineware bowls. This architectural level overlay a thick ashy brown deposit of trash and wash with no associated buildings. Stratigraphy and associated ceramics securely date this trash and wash deposit to the Ubaid period. This deposit contained a cache of more than 1,090 unbaked clay sling bullets (fig. 7). The cache appears to have been discarded within the trash deposit and was not associated with any architecture or occupation surface.

The types of activities in Operation 8 changed over the course of the Ubaid period. The uppermost building level had the remains of a well-built house: walls 2, 3, 6, 7, 8, and 16. Beneath this architecture, a thick trash and ash layer (locus 28) sealed off an earlier occupation where this part of the site functioned as an industrial area. Excavations recovered a series of ten pyrotechnic features and associated ashy trash deposits (fig. 8). Eight of these features were excavated in 2009. The features are generally 1.5×1.0 m or 1.0×1.0 m and were excavated about 25 cm into the ground surface. The features often had three or four mudbricks

arranged so as to support the floor of an aboveground superstructure. The features are sometimes plastered, and they always show evidence for intense heat — the inner part of the feature walls is generally vitrified to a crumbly pale green that grades into intense orange or reddish brown, and then to normal soil color. The features appear to be the firebox portion of an installation that originally had an aboveground superstructure — perhaps the heating chamber — that is no longer preserved. The features resemble kilns as known from other Ubaid village-sized sites in north Syria such as Tell el-Abr and Kozak Shamali. However, the features do not contain any artifacts or industrial debris that one might expect to see in a kiln or smelting furnace — there are no kiln wasters, no crucible fragments, and no copper slag, tuyeres (blowpipes used in smelting), or litharge (an industrial byproduct of



Figure 9. Carved steatite stamp seal, heavily worn and re-used in a Late Chalcolithic 1 context (1,000 years after the end of the Halaf period). Operation 9, Halaf period

refining silver). The features were not all in use at the same time, but instead seem to represent a series of outdoor surfaces and associated pyrotechnic features that were repaired, modified, or abandoned over an extended period.

Operation 9: Operation 9 was excavated by Tate Paulette and Katharyn Hanson as a 10×10 m trench on the northeast slope of the south mound. Excavations in the southwest corner of the trench located a pit (locus 23) dating to the Late Chalcolithic 1 period. One surprising find in this context was a very worn Halaf-style incised and drilled steatite stamp seal with a loop on the back (fig. 9). The loop was broken, and its stubs were very worn. The Halaf seal must have been found 1,000 years later by Late Chalcolithic 1 inhabitants of the mound and kept as an ornament

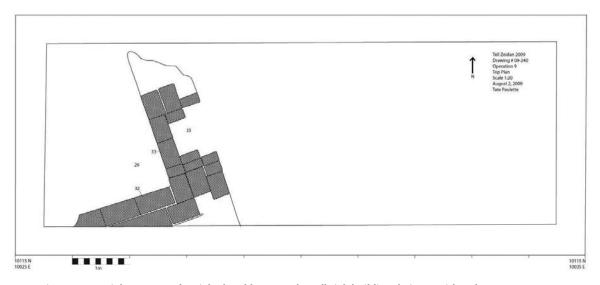


Figure 10. Partial exposure of a niched and buttressed mudbrick building dating to either the Late Chalcolithic 1 or the Ubaid-Late Chalcolithic 1 transitional phase. Niched- and buttressed-architectural style shows great continuity with earlier architectural styles of the Ubaid period. Operation 9

or talisman. Pit 23 cut into the uppermost preserved architecture in Operation 9 — a small portion of a niched and buttressed mudbrick building that apparently dates to the very beginning of the Ubaid-Late Chalcolithic 1 transitional phase (fig. 10). The wall of this building was three brick courses wide, with a 60 cm deep niche built into the outer face (35 in fig. 10). The niche was 90 cm wide. This appears to have been a public building, perhaps a temple similar to those at Tepe Gawra. Immediately to the east of this niched building, in mudbrick collapse deposit locus 27, excavation recovered more than fifteen pinched lumps of sealing clay, bearing finger impressions (fig. 11). This cache of sealing clays suggests that administrative or record-keeping activities might have been associated with this building. The niched building overlay a mudbrick building (walls 39, 40, and 51) that appears to have been built on a slope so that the walls had more brick courses to the north than they did to the south. An additional smaller room with walls only one course wide (walls 60, 62, 63, and 66) was added to the northwest of the original room (fig. 12). Based on ceramics, both rooms appear to date to the earliest stages of the Ubaid–Late Chalcolithic 1 transitional phase and to the very end of the Ubaid period. This is an extremely important result because it represents the first time that the Ubaid-Late Chalcolithic 1 transitional phase has been found in association with well-preserved, intact architecture. The deposits in this building also show a clear continuity between the Ubaid and the Late Chalcolithic 1 periods, rather than an abrupt transition.

Operation 12: Operation 12 was excavated by Abbas Alizadeh as an 8 m (east—west) \times 10 m (north—south) trench on the northwest corner of the south mound. The trench was meant to explore and date a large area of mudbrick that had been visible on the mound slope in 2008. Surface ceramics in this area also appeared to be post-Chalcolithic. Excavations uncovered a large 6×6 m mudbrick platform built against the northwest slope of the south mound (fig. 13). The platform



Figure 11. Prepared lumps of unused sealing clay, bearing the finger impressions of the people who prepared the clay for use in sealing doors or containers such as jars or baskets. The sealing clay was found in association with the niched and buttressed walls, suggesting that this structure might have been an administrative building of some sort. Operation 9

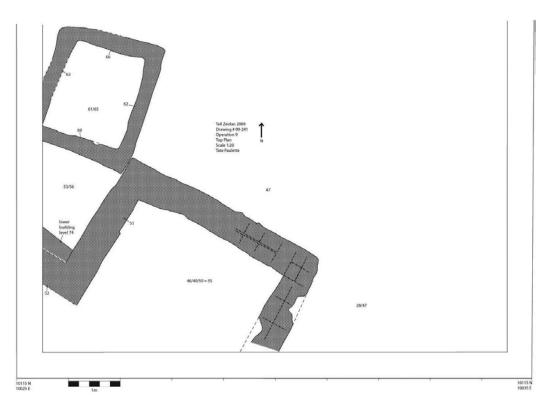


Figure 12. Mudbrick architecture dating to the Ubaid-Late Chalcolithic 1 transitional phase, and extending back into the end of the Ubaid period. Operation 9



Figure 13. 6 x 6 m stepped mudbrick platform with an access ramp on the northwest corner of the south mound. This platform appears to date to a small-scale later reoccupation of Tell Zeidan in the early third millennium BC. Operation 12

had two steps on its north side (loci 28 and 36) and was constructed of well-built mudbrick walls 14, 19, and 35 enclosing a core that was filled with mudbrick fragments (locus 8). The platform had an access ramp (locus 33) built up against the steps on its north face. After the construction of the platform, a second building phase added a room to the south of the platform (walls 16 and 32). Both phases share the same ceramic assemblage. This consists of wheel-made fine, medium, and coarse wares with either no visible temper or fine sand temper. The ceramics and the architecture are clearly post-Chalcolithic in date. The closest-published parallels to these ceramics that we were able to identify in the field derive from Hammam et-Turkman VI East, which the excavators date to the early third millennium BC. Although late ceramics occur sporadically across the site, Operation 12 is the only part of Tell Zeidan where this material has been found in stratigraphic context. It would therefore appear that Tell Zeidan was abandoned at the end of the Late Chalcolithic 2 period (ca. 3900 BC) for more than 1,000 years and then saw a brief partial reoccupation in the early third millennium BC.

The Northwest Mound

Operation 10: Operation 10 was opened as a 10×10 m trench on the northwest slope of the northwest mound, approximately 8 m below its highest point. The uppermost deposits in the trench dated to the Late Chalcolithic 1 period (fig. 14). Beneath a large clay-filled pit (perhaps used for brick manufacture?), excavations exposed a complex consisting of a small house and associated outdoor surface or courtyard (fig. 15) with a large bread oven/tannur. One large storage jar lay inside a room of the house. A complete baked clay "muller" (ZD2619) was found in room deposit 29 in this house (fig. 16). Mullers are a distinctive Ubaid artifact form in southern Mesopotamia, but their use in north Syria seems to have continued into the Late Chalcolithic 1 period. In the floor of the courtyard of the house, three very large storage jars had been buried so that only their mouths were visible at the level of the courtyard floor. One of the jars contained a flint-scraped, straight-sided "Coba bowl," apparently used as a scoop for the contents of the storage jar. In addition to the large storage jars, two infant jar burials (loci 45 and 54) had been dug into the courtyard floor.

Beneath the level of the courtyard and its large storage jars was a series of thick wash layers, which seem to indicate a period when most of Operation 10 was used as an open-air surface, probably adjacent to houses located in the area outside the limits of the trench. Ceramics from these wash layers (loci 58 and 62) dated to the Late Chalcolithic 1 period. These deposits sealed

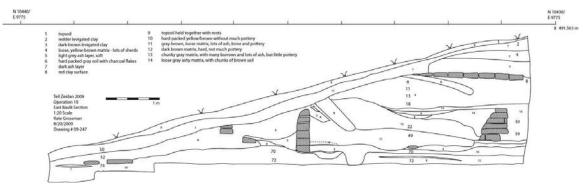


Figure 14. East baulk section showing brick pit overlying a series of houses dating to the Late Chalcolithic 1 period. Operation 10

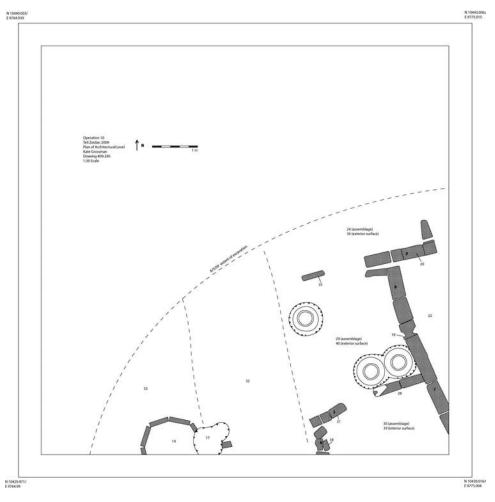


Figure 15. Top plan of Late Chalcolithic 1 house with an oven and two large grain-storage pithoi set into the courtyard floor. Operation 10



Figure 16. Baked clay "muller" found in the Late Chalcolithic 1 household deposits. The use of mullers in the Late Chalocolithic 1 period gives further evidence for strong continuities in material culture between the Ubaid and the immediately succeeding Late Chalocolithic 1 period. Operation 10

off two large pits, pit 57 (apparently a latrine) and pit 67, along with a mudbrick wall locus 65 — all set into wash layer 70. The pits were excavated, along with infant jar burial 71 (also set into wash layer 70). After the removal of the pits, wash layer 70 was excavated as well, revealing more of the face of wall 65. The presence and dating of these wash layers confirm that at least this part of the northwest mound saw long-term use as a domestic quarter during the Late Chalcolithic 1 period.

The Northeast Mound

Operation 7: Excavated by Khaled Jayyab and Nabil abu-l-Kheyr, Operation 7 was laid out as a 10×10 m trench along the southwest slope of the northeast mound (fig. 1). This trench aimed to recover Ubaid architecture and associated deposits. Initial excavations showed that the uppermost 50 cm consisted of a 50 cm thick deposit of wind-blown (Aeolian) fine silts, sealing off the final occupation of this part of the site. The underlying deposits were wash layers containing a mixture of Ubaid and Late Chalcolithic 1 and 2 ceramics. At this point, the size of the excavated area was reduced to a 2×9 m exposure along the north baulk. Excavations in this area located deposits of Ubaid midden and wash layers aligned along what appears to have been a drainage ditch dug by the Ubaid inhabitants of the site. Unfortunately, no architecture was located in association with these deposits. Excavation of Operation 7 was terminated after one week in order to focus our efforts on areas with architecture and associated remains. The trench was backfilled.

Operation 11: Excavated by Khaled Jayyab and Nabil abu-l-Kheyr, Operation 11 was laid out as a 10×10 m trench along the eastern slope of the northeast mound, after Operation 7 was closed. Except for a shallow deposit beneath the disturbed topsoil that dated to the Ubaid–Late Chalcolithic 1 transitional period (locus 4), all deposits in Operation 11 were Ubaid in date.

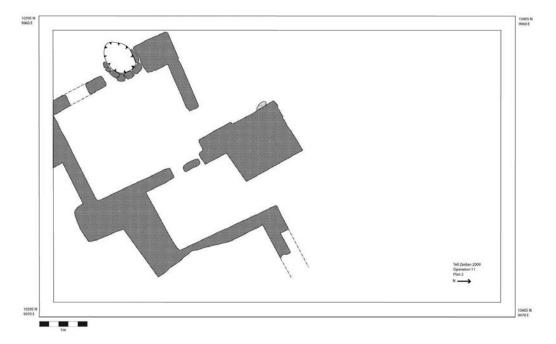


Figure 17. Partial exposure of a mudbrick house dating to the Ubaid period. Although modest in scale and construction, room deposits in this structure yielded remarkable imported prestige goods. Operation 11





Figure 19. Ground-stone bowl made from obsidian, presumably imported from the Lake Van region in eastern Anatolia. Scale 1:1. Operation 11

Figure 18. Carved and polished steatite rod with a hook at one end. Steatite (soapstone) is a raw material presumably imported from the Upper Tigris region several hundred kilometers to the northeast of Tell Zeidan. Scale 1:1. Operation 11

The uppermost preserved Ubaid deposit was pit 5, which contained large amounts of ceramics, bone, five to six pieces of sealing clay, and a kiln waster. Beneath this were three architectural levels. The uppermost building level included the stub of a niched wall (locus 5) and a plastered surface (locus 15).

Beneath this level, wash layer 16 sealed off the second level of architecture, This consisted of a small Ubaid house with mudbrick walls one course wide — walls 18, 21, 22, 23, and 33, forming two rooms and a corridor (fig. 17). It was impossible to determine from the preserved portion whether or not this was part of a tripartite house plan. Although the house was simple in plan and construction, the floor (locus 31) of the northern room yielded two unusual finds made from carefully worked exotic raw materials — a beautiful rod with a hook at the end carved from steatite presumably imported from the Upper Tigris region in eastern Anatolia (fig. 18) and a fragmentary ground-stone cup made from obsidian presumably imported from the Lake Van area in eastern Anatolia (fig. 19). The combination of exotic, rare raw material and the high level of craftsmanship required to produce the bowl and the rod suggest that these would have been extremely valuable prestige goods or items of wealth in the Ubaid community at Zeidan. Kiln wasters from the manufacture of Ubaid ceramics (e.g., ZD2476) were also found in the rooms of this house. The house walls were built directly on top of the third and earliest building level documented in 2009. This consists of walls 38, 43, and 45. Each of these walls was at least three brick courses wide — much more substantial than the thin walls of the overlying architectural level. The tops of the walls of this earliest building level were reached in the final days of the 2009 season.

In-field Laboratory Analyses

Chipped Stone: Dr. Elizabeth Healey analyzed all the approximately 1,500 pieces of chipped stone recovered in 2008 from Operations 1–4. She examined two main aspects of the assemblage: lithic raw materials and retouched pieces. Roughly 75 percent of the chipped stone was cobbles gathered from the Balikh River. The cobbles were mainly used to manufacture casual flake tools. About 20 percent of the chipped stone was a fine-grained brown nodular flint, most probably

collected from the cliffs along the south bank of the Euphrates River, just a few kilometers to the south of the site. About 5 percent of the chipped stone was obsidian, predominantly the dark greenish black obsidian from the Bingöl and Nemrut Dağ sources in the Lake Van region of eastern Turkey. Almost all the blade tools were manufactured from either the Euphrates nodular flint or obsidian.

Retouched pieces were extremely common at Zeidan, ranging from 40 to 75 percent of the retouched pieces in the four operations. Most of the sickle elements showed traces of bitumen hafting and were oriented horizontally in the sickle. Other tools included denticulates, piecers, and drills. Scrapers were rare, and projectile points were (surprisingly) absent altogether.

Zooarchaeology: Kathryn Grossman began the analysis of faunal remains with bones recovered during the 2008 field season. To date, 3,000 bone fragments have been analyzed. Most of these are from Operation 1, with some remains from Operations 2, 3, and 4. The analysis so far shows a high proportion of the usual suite of Near Eastern domesticates (cattle, pigs, sheep, and goats), with a smaller amount of wild game (onagers, fallow deer, roe deer, gazelles, tortoises, and hares). The ratio of sheep to goats across the site is about 5:2, although as the analyzed sample increases, this ratio may show chronological variation. Relative proportions of the main domesticates are as follows: cattle 18.7 percent, sheep and goats 69.8 percent, pigs 11.5 percent. Kathryn also began to conduct a targeted study of faunal remains recovered from stratigraphically important Ubaid contexts of Operations 6, 7, 8, 9, 10, and 11 as part of the broader effort we are making to study intra-site differences in the distribution of ceramics, stone tools, animal bone remains, plant remains, and small finds in the different parts of the site.

Archaeobotany: Dr. Alexia Smith is in charge of archaeobotanical research for the Tell Zeidan excavations. During the 2009 season, fifty-four archaeobotanical samples were floated to recover the carbonized (burnt) remains of charcoal and seeds. By identifying these remains, we can reconstruct the environment and agricultural economy in the different occupational phases of Tell Zeidan. The samples consisted of material collected during both the 2008 and 2009 field seasons.

The light fractions from eight samples were analyzed. In general the samples appear to contain large quantities of wood and relatively few grains. This may be indicative of a wetter environment during the Ubaid period and/or a relatively low level of human impact on the landscape. From the samples examined so far, there appears to be little to no evidence for the use of dung fuel; wood appears to be the most commonly used fuel.

It is too early to talk securely about relative abundance of various crops, but from the samples analyzed so far, two-row hulled barley is the most numerous and frequently encountered grain. Emmer and einkorn wheat are found in much smaller proportions and tend to be more poorly preserved. Legumes are particularly poorly represented. This is typical at many Near Eastern sites and is often attributed to processing and preservation factors. Of the legumes identified so far, lentil and *Vicia* sp. are the most common. The abundance of wood and phytoliths is interesting and will be studied in greater depth in future seasons.

Ceramic Analysis: Philip Karsgaard and Khaled Jayyab worked on developing a ceramic typology and coding system for the Halaf, Ubaid, Late Chalcolithic 1 and 2 ceramics from Tell Zeidan. This typology focuses on vessel form, ware type, and decoration. We can already see that Tell Zeidan, as a site in the Balikh River Valley, had its own distinctively local forms, even though it shared similar ceramic forms with Ubaid and Late Chalcolithic 1–2 sites in the Euphrates Valley to the west, and the Upper Khabur River Valley to the east. Two aspects of the Ubaid ceramics at Zeidan are especially interesting and distinctively local in character. First, the Ubaid painted



Figure 20. Ubaid painted pottery sherd showing a procession of animals, including an ostrich. Naturalistic renderings of animals are a distinctive feature of Ubaid ceramics in north Syria and are very rarely found on ceramics in the southern Ubaid heartland. Scale 1:1

ceramics continue to use evolved forms of decoration that had been characteristic of painted pottery in the earlier Halaf period. Second, the Ubaid painted pottery of Tell Zeidan (and probably other north Syrian sites as well) differs from the Ubaid pottery of southern Mesopotamia in the use of animal motifs, often quite naturalistically rendered (fig. 20).

Overview of the 2009 Season

In 2009, we were able to build on and significantly expand our understanding of virtually all major occupation periods at Tell Zeidan. We now know that the Halaf occupation underlying the Ubaid was quite substantial and long lived. The Ubaid settlement seems to have been complex and differentiated, with some areas of public buildings, private houses, and craft or industrial areas. We can see evidence for the use of prestige goods or items of wealth made by highly skilled master craft specialists from rare imported raw materials. We can see that the Ubaid inhabitants of Zeidan had a distinctively local identity, despite their clear connections and affiliation with the broader context of the Ubaid world in southern Mesopotamia and other regions. Finally, in the architecture and use of mullers, we can see clear continuities and a gradual transition between the Ubaid and immediately succeeding Late Chalcolithic 1 period.

We hope to explore the complex tapestry of social and economic life at Tell Zeidan further in 2010.

Acknowledgments

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