A recent survey in *The Economist* (July 29, 1995) noted that cities are booming and argued that their growth is economically healthy and culturally beneficial. Regardless of editorial perspective, the figures are staggering. Nearly half of the world’s population and three-quarters of Westerners live in cities. In the last thirty years the number of city-dwellers worldwide rose by 1.4 billion and over the next fifteen years it will rise by around one billion more. Most of the growth occurred in developing countries, but during the past decade, cities in industrialized countries—even old downtowns—have enjoyed a resurgence. Such figures suggest the process of urbanization and urbanism as compelling, if not critical, research areas and, as long-lived and generalized phenomena, areas that demand historical and cross-cultural perspectives.

As the “cradle” and arguably the most urban of the world’s primary civilizations, Mesopotamia merits particular attention. Indeed, southern Mesopotamian, with its irrigation agriculture base, has been dubbed “heartland of cities” (Adams 1981). The process of urbanization in southern Mesopotamia, which climaxed in the late 4th millennium B.C., has been the focus of intensive archaeological investigation (Adams 1981), and major projects analyzing ancient urban forms in the area are currently underway (Stone and Zimansky 1995). By way of contrast, the dry farming regions of northern Syria and upper Mesopotamia were, for a long time, thought of as backwater. In the last twenty years, however, excavations have shown that complex urban and literate civilizations existed there too in the 3rd millennium.

Although the process of urbanization in the area has been the subject of scholarly speculation (Weiss 1990; Weiss et al. 1993; Weiss et al., n.d.), the topography of northern Mesopotamian cities remains poorly understood. The Tell es-Sweyhat Project was undertaken to explore both the shape of the city and the process of urbanization in these northern settlements.

**TELL ES-SWEYHAT**

Tell es-Sweyhat lies on the east bank of the Euphrates, 65 kilometers down river from Jerablus (Figs. 1, 2). It sits in the center of an embayment, a crescent-shaped plain surrounded on the north, east, and south by a plateau of desert steppe and bordered on the west by the slightly entrenched flood plain of the river (Fig. 3). The embayment, a mid-to-late Pleistocene river terrace, takes in 48 square kilometers of arable land. It lies within the semi-arid dry farming zone; however, dry farming is precarious, so pastoralism, probably in the past as today, would have been a critical part of the area’s subsistence economy (see Miller’s and Weber’s reports).

FIG. 1. Tell es-Sweyhat’s main mound from the northwest, with the outer town in the foreground. The photograh was taken in late June 1993 when the northwestern outer town was under irrigation cultivation. The barley was ripe and the harvest occurred a few days later. The desert plateau is visible in the background.

A City in Northern Mesopotamia in the 3rd Millennium B.C.

Richard L. Zettler

with Naomi F. Miller, Jill Ann Weber, Peter Peregrine, and Michael D. Danti

Tell es-Sweyhat is a large 3rd millennium site on the Euphrates River in northern Syria. Excavations undertaken in the mid-1970s (Holland 1976, 1977) suggested the site as a case study in urban growth and collapse and a nearly ideal “field laboratory” for studying early northern Mesopotamian cities. In 1989 the University of Pennsylvania Museum requested an excavation permit and conducted a short field season at the site. Penn and the University of Chicago’s Oriental Institute then formed a joint project, with cooperative excavations in the fall of 1991 and alternate-year field seasons thereafter. This report and the accompanying contributions from project team members focus on Penn’s work at the site and in its vicinity.
Fig. 3. Satellite view of the Tell es-Sweyhat embayment (see Danti’s report), with Tell es-Sweyhat in the center (1) and Hajji Ibrahim just to the southeast (2). The Euphrates (3) and the northern end of the impound lake behind the hydroelectric dam at Tabqa are on the left side of the image, the desert plateau (Arabic: jebel) on the right (4). [Abbreviation: SPOT (Satellite pour l’Observation de la Terre) image]

Fig. 4. Topographic map of Tell es-Sweyhat, showing excavated and geomagnetic survey areas mentioned in text. Contours are at 1-meter intervals, measured from the top of the mound. [Based on map by Michael Danti]

Sequence of Occupation

An outline of Tell es-Sweyhat’s growth and development had emerged by the end of these excavations. We could see that the site was occupied by the beginning of the 3rd millennium. Although initially a relatively small village covering the area of the central mound, it expanded to a 33-hectare settlement in the final centuries of the 3rd millennium. The original village became a fortified citadel; a substantial outer town emerged around it, and the urban area was surrounded by an enclosure.

By 1993, excavations in Operation 1 (Fig. 5), on the west side of the main mound, had reached the late 3rd millennium levels that lay more than 2 meters below the mound’s surface. In beginning a new phase of regional work (see Danti’s report), we were hampered by the lack of a detailed ceramic sequence into which we could tie other sites in the embayment. We took advantage of the situation by clearing the western end of the operation to sterile soil; in 1995 we broadened the sounding. This deep sounding, along with one in Area II, has produced ceramic evidence that relates Tell es-Sweyhat to other sites in the embayment and helps establish a sequence of phases within the site itself.

We have divided Operation 1’s sequence into eight occupation phases. The earliest occupation, Phase 1, yielded pottery similar to that from the lowest phases.
in the Area II sounding and dates to the early 3rd millennium. Phase 4 belongs to the late 3rd millennium; Phases 5-8 postdate the late 3rd millennium occupation, but probably end before 1800 B.C. since they yielded no Middle Bronze III ceramics.

Our sequence has shown that the early 3rd millennium village probably extended to the western edge of the main mound. However, occupation there is considerably lower than the apparently contemporary occupation in the Area II sounding. The disparity in elevations may suggest that the core of the mound conceals an earlier occupation. If not, it may be that the early 3rd millennium levels in the center of the mound were raised, perhaps by setting buildings on artificial platforms or terraces.

At the other end of the time-line, the presence of Phases 3-8 suggests that the settlement did not completely collapse in the late 3rd or early 2nd millennium. Occupation continued for a time, with population concentrated on the central mound.

Excavations in Operation 25, a long, narrow trench in the eastern outer town across the outer fortification wall, revealed that the wall was built on the leveled remains of earlier houses that date to the third quarter of the 3rd millennium. The houses suggest that the mid to late 3rd millennium settlement might have covered as much as 10 hectares. The settlement's growth, then, was more continuous than had been assumed.

**A MID 3RD MILLENNIUM CEMETERY**

A serendipitous discovery revealed the existence of a cemetery on what would have been the edge of the mid to late 3rd millennium settlement. In 1993, the owner of the land on which Tel es-Sweyhat sits began irrigating in the area of the northwestern outer town. The water flow opened up several deep holes in the ground, revealing the location of tombs. We began salvage excavations in two of the open holes: Tomb 1 and Tomb 2. Tomb 1's rectangular shaft, cut from sterile soil, was about 2 meters deep (Fig. 6). It ended on a ledge, from which steps led down to the floor of a chamber about 5 meters in diameter and 2.5 meters high. Tomb 2 had partially collapsed, and we could not determine its size or exact shape. Both tombs had been looted. Tomb 1's shaft, however, was sealed by the outer fortification wall. This wall, built at the end of the 3rd millennium, provided a terminus ante quem for the tombs, while the pottery and small finds suggested a date in the third quarter of the 3rd millennium.

In the following season, we noticed a sink hole in the tomb field. Taking this to mark the location of an unlooted tomb, we began excavations in the area. Our perception paid off. Beneath the surface lay Tomb 5, a multiple burial of at least ten individuals, accompanied by hundreds of artifacts—personal ornaments, weapons, animal bones, pottery, and more (Figs. 7, 8; see also box on Tomb 5).

Shaft-and-chamber tombs with multiple burials are common in the Euphrates River valley (Orthmann 1980). The Sweyhat tombs are spread over an area of at least one hectare. Based on their size the cemetery may include 100 to 150 tombs. Whether it was associated with the settlement or served as burial place for a regional population is uncertain. Nevertheless, such a large unlooted cemetery is a potentially rich source of information on the mid to late 3rd millennium population and demographics, as well as on diet and disease. If the Biblical account of Jacob's instructions to his sons at his death (Gen. 49: 29-33) can be taken as documenting similar burial practices known from the Levant, the tombs probably represent family burials. Analyses of skeletal remains focusing on features assumed to have a genetic basis, supplemented by genetic data that might be provided by the analysis of ancient DNA, might shed light on the relationship of the individuals in the tombs (Brown and Brown 1994; Thuesen 1995). Artifact distributions might provide insights into the socio-economic structure of the early settlement.

**URBAN FORM AND STRUCTURE**

The second goal of renewed excavations at Tell es-Sweyhat is the reconstruction of the topography of the late 3rd millennium urban center and the elucidation of the political, socio-economic, and ideological rules that it encoded. The goal was suggested in part by A. Leo Oppenheim's classic discussion of differences between southern and northern Mesopotamian cities. Southern cities, with their diffuse power structures, had similarly diffuse layouts in which temples and palaces were spread across the city. Northern cities consisted of a fortified center containing the palace and temple with their dependencies, and an outer residential area commonly surrounded by a second fortification wall. Oppenheim dubbed them "citadel cities" (1964:130-133).

Cuneiform tablets from the mid 3rd millennium royal palace at Tell Mardikh (ancient Elba) provide evidence seemingly consistent with Oppenheim's description (Matthiae and Petrinato 1976, Archi 1989). Archaeological work, notably at Tell Tayy and Tell
A Mid 3rd Millennium Tomb

Tomb 5's oval chamber measured 3.9 by 4.9 meters and contained at least ten individuals. Two articulated skeletons lay on the floor on the western side. The one nearest the tomb's entrance, probably the most recent burial, was that of a middle-aged female. A smaller, poorly preserved skeleton had at its breast two crossed straight pins of copper or bronze, limestone rings and a series of beads, including two in the shape of a cow or bull. The pins may have served to secure a shawl similar to that worn by women on contemporary shell reliefs from Mari, a site 250 kilometers down river from Tell es-Sweyhat (Fig. 9). Near the skeleton's head were two ceramic wheels from a mold. Some of the remaining human bones were found scattered around the chamber's floor, but most were in a jumble against the north wall. Earlier burials were apparently unceremoniously tossed aside when the more recently deceased were interred. Sheep and goat, pig, and bird bones (as well as bird eggs) scattered around the chamber's floor are probably the remains offunerary offerings.

Many if not all of the artifacts probably represented items and provisions for the dead needed in the afterlife. Most were mixed with the bones against the chamber's north wall. The artifacts included pins that had probably been used to secure clothing or burials wrappings; daggers (Fig. 10) and ashheads, as well as a javelin point and a string notch for a light projectile; hollow bone cylinders with incised decoration; a flint core; a model covered wagon (Fig. 11) and two other wheels, perhaps originally associated with the two wheels found near one of the articulated skeletons; beads; and more than one hundred pottery vessels (Fig. 12).

The pottery included plain simple ware and thin and highly fired "metallic" ware. Plain simple ware forms included cups, bowls with thickened rims, including one with a high pedestal base, globular jars of varying sizes, including examples with spouts commonly dubbed "teapots," a vat, and miniature jars. Metallic ware forms included a conical cup and bowls, several deep examples of which had a pedestal base and two of which had a tripod base, but most were small to medium-sized jars with globular bodies, low ring bases, high necks and flaring rims and were commonly decorated with burnished and/or fine red painted bands. Though we sieved the contents of all of the vessels and our archaeobotanist (Naomi Miller) floated the soil removed from them, only the largest jar provided evidence of what may have been its original contents. According to Jill Weber, the jar contained the bones of a large number of birds roughly the size of modern-day pigeons.
Fig. 16. Aerial photograph of the Operation 4 house uncovered in 1991. The double wall along the top is the outer, northeastern wall of the building. The internal buttresses in the northeastern room may have served to support a partial second story. Circular holes represent ovens or emplacements for water jars. The photograph was taken by a radio-controlled camera suspended from a kite.

Photo by Abdel Aziz Al-Ghafur, photographer of the Aleppo Museum

DATA RECOVERY IN THE OUTER TOWN

Our work in the outer town involves both non-invasive data recovery techniques and excavation. We were particularly interested in whether we could identify specialized activity areas and features with these methods. We began by making systematic surface collections in the outer town and area south of the outer rampart. In 1993, we undertook a pilot program to determine the feasibility of geomagnetics for creating useful archaeological maps of the outer town. Our pilot program was highly successful (see Peregrine’s report) and we continued the geomagnetic mapping in 1995. We have now mapped 7 hectares or 17.5 percent of the outer town and outer town south (see Fig. 4), including large areas on the east (Block 1), southwest (Block 8), and south (Block 9).

The geomagnetic data has added to our understanding of the topography of the outer town. Block 1 (see Peregrine, Fig. 3), for example, shows the outer and inner fortification walls, as well as a gateway in each wall; a network of streets; room blocks, including an industrial area of kilns; and what may be a large open space to the north of the room blocks.

Our excavations include several test exposures undertaken to determine the “ground-truth” of the geomagnetic anomalies revealed in the mapping project. Operation 4 yielded a large, apparently domestic building (Fig. 16), of which we recovered the south-

eastern and northeastern outer walls, eight rooms, and an outside space to the west. The building would have had a floor space that exceeded 110 square meters and so would have been more than twice the size of contemporary houses at nearby sites. Whether it is typical of other houses in Tell es-Sweyhat’s lower town will have to await more extensive excavations. The building had a large courtyard. The piers that abutted the walls of the northwesternmost room suggest that it may have had either a second story—and, thus, looked like house models from various sites in Syria and Iraq—or a roof that was utilized as a living space.

Features such as a press, oven, and pebble-lined pits which probably served as emplacements for water jars defined activity areas. Pierced clay disks on the floor of the northwesternmost room were probably spindle whorls and indicate that yarn was spun there.

The architectural remains in Operation 9, north of Operation 4, had been heavily damaged by modern plowing, but represent parts of three buildings and a street. A stone-lined water conduit sloped down from southwest to northea across the space between the buildings. The conduit perhaps channeled water from a nearby well. We found some evidence for the existence of wells in the form of Euphrates river cobbles on the surface to the south of the operation.

The source of a water supply has been one of the more perplexing aspects of Sweyhat’s location; it lies 3 kilometers from the Euphrates river, the nearest natural source. Perhaps a number of wells would have existed in the settlement much as they do in the villages of the area today. The inhabitants would have obtained drinking water directly from wells and stored it in jars in their houses, as the pebble-lined pits in the Operation 4 building suggest.

The inhabitants would have obtained drinking water directly from wells and stored it in jars in their houses, as the pebble-lined pits in the Operation 4 building suggest.

For firing pottery, The Operation 16 kilns and walls showed up clearly in the geomagnetic maps of the area. Operation 23, immediately southeast of Operation 16, revealed a well-preserved circular kiln, circa 5 meters in diameter, in a shallow depression in sterile soil.

We also tested areas where our geomagnetic survey picked up no noticeable anomalies. Operation 17 to the north, for example, yielded only a series of pits cut from a surface that had probably been eroded or plowed away. The area may have been an open trash dump in the late 3rd millennium. In any case, the excavation supports our supposition that blocks of Block 1 represent undeveloped space, substantial areas of which, if we can generalize, would appear to have existed in the lower town.

We had discovered part of the settlement’s outer fortification in clearing Toms 1 and 2 in 1993. We undertook more work on the wall in 1995 to test the results of our earlier mapping. Specifically, we tested parallel linear anomalies circa 20 meters apart in Block 1, which we posited represented the line of the eastern outer fortification wall.

Operation 25 exposed several occupation phases. The second phase consisted of the outer fortification wall, which, as already noted, was built on the leveled-off remains of the earlier build- ings. In contrast to the northern outer fortification wall, apparently a casemate structure, the eastern wall was a 20-meter-wide earthen rampart, faced on the outside with a sloping stone revetment and on the inside with a mud-brick wall set on stone footings.

DATA RECOVERY SOUTH OF THE OUTER FORTIFICATION WALL

Sherd densities in the area south of the outer rampart were lower than densities in the outer town, but Operation 19B, located over stones visible on the surface and mapped in our survey, yielded the fragmentary stone footing of a 1.5-meter-wide wall. The archaeological deposit in the area was less than 50 centimeters. Our work yielded few diagnostic pottery sherds.

In general, survey and geomagnetic data, as well as excavations, have combined to prove that the area south of the outer wall was occupied at the time of the site’s flourishing.
CONCLUSIONS

A major difference between applied and “pure” research is the open-endedness of the latter. Archaeological projects with broad research goals such as the Tell es-Sweyhat Project require an indeterminate number of field seasons. As work proceeds, digging problems come up, and some general questions get answered and unanticipated possibilities arise. We have now begun to answer some of the questions we posed when we initiated the project, but we have not yet just "scratched the surface." The major immediate challenge ahead involves continuing long-planned work at the site, as well as in the region, while responding to the demanding, but unparalleled opportunity of studying the mid-3rd millennium settlement’s population with a newly discovered Tell es-Sweyhat cemetery present. 2

ACKNOWLEDGMENTS

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BIBLIOGRAPHY

All references in the following reports are included here.

Adams, Robert McC.

1981 Heartland of Cities.
Chicago University of Chicago Press.

Arch, Alison


Brown, Terrence A. and
Keri A. Brown


Boitenius, H.


Holland, Thomas A.


Matthiae, Paolo, and Giovanni Pettinato


Oppenheim, A. Leo


Ortman, Winfried


Parrot, André.


Schwarz, Glenn M. and Steven E. Felson, eds.


Stone, Elizabeth C. and Paul Ziminley


Thuessen, Ingo


van Zeist, Wimle, and J.A.H.

Bakker-Heeres


Wattenmaker, Patricia


Weiss, Harvey


Weiss, Harvey, M.J., A.C. Pierce, W. Wetterstrom, F. Guichard, L. Senior, B. Meadow, and A. Curnow


Weiss, H., M.A. Courtey, M.A. Zeder, P. van den Mieroop


Wilkinson, Tony J.


Zohary, M.


Botanical and Faunal Remains from Tell es-Sweyhat

BOTANICAL REMAINS

Chalcolithic plant remains from ancient sites open a window onto many aspects of ancient landscape and economy. In the Near East, for example, woodland charcoal comes primarily from trees and shrubs burned as fuel. It reflects which woody plants were available for cutting and therefore aids in reconstructing the ancient environment. Charred seeds from burnt buildings are most likely the remains of stored crops or food. They reflect the agricultural production and consumption that took place in and around the site. Charred seeds from trash deposits originated primarily in dung burned as fuel. They reflect the diet not of people, but of domestic herds, and therefore ancient use of pasture and crop land.

Today the only trees in the Sweyhat embayment are the ones whose flowers or fruits are used in gardens. Before deforestation, however, the natural vegetation around the site would have been open oak woodland interspersed with steppe vegetation. A riparian forest would have grown along the banks of the Euphrates, about 3 kilometers from the site (Zohary 1973).

This patchy environment is reflected in the plant remains from Sweyhat. The small amount of identified charcoal consists primarily of poplar or oak. There are also some riparian types, which suggests a certain amount of deforestation had already occurred; people were fetching wood from the banks of the Euphrates rather than from the immediate vicinity. Nevertheless, tiny amounts of wood of both oak and a steppeland shrub of the Chenopodiaceae family have been recovered. High proportions of seeds relative to wood charcoal indicate dung was used as an alternative fuel to relatively scarce wood.

Most of the seeds from Sweyhat’s 1970s excavation are stored crop and food remains from burnt buildings, not the remains typical of the current excavation. The crops include barley and grass pea (Lathyrus), a jar contained caper buds and unripe fruits (van Zeist and Bakker-Heeres 1985). There is an almost complete absence of wild or weed species.

The contrast with the current Sweyhat assemblage is instructive. Among the cultivated, barley is still the most prominent. Bread wheat, emmer, einkorn, and a few pulses (mainly pea) also occur. The vast majority of the seeds by count come from wild plants, however. Of these, small legumes (Trigonella) predominate. Although it is doubtful that every single seed in the assemblage comes from burned dung, it is fair to say that the proportion of wild plants relative to cultivated ones reflects in a general way how people fed their herds which in turn reflects labor costs. Pasturing is less work than growing crops as fodder. It seems that at Sweyhat shepherds brought the herds out to the steppe to graze, perhaps to avoid their trampling the fields within the ring of the immediate environment, as Tony Wilkinson (1982). Such specialization of labor has been postulated for the slightly earlier site of Kurban Hoyuk, about 170 kilometers to the north (Wattenmaker 1990). Two samples from near an oven in the somewhat earlier site of Haji Ibrahim show remarkable differences from the Sweyhat remains. Though the proportion of wild to cultivated seeds are similar, the primary wild grass is a grass, Eremopyrum, that is more likely to be a field weed than a steppe plant (van Zeist and Bakker-Heeres 1985). It is possible that these samples are either burnt crop-processing debris or the remains of a straw-fed fire. If, however, they are contextually analogous to the Sweyhat samples and represent the remains of burnt dung, perhaps we should envision a small village occupied by farmers whose dependence on farming did not permit them to send shepherds off to more distant pastures. Analysis that will help answer this question awaits more samples from this site.

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FAUNAL REMAINS

Analysis of animal bone from archaeological sites provides a picture of ancient patterns of animal production and use. When compared within and between sites, these patterns can reflect differences in area or site functions and status. A preliminary analysis of species represented at Sweyhat and Haji Ibrahim suggests considerable differences between the two sites. It also highlights differences between Sweyhat and other urban centers in northern Mesopotamia.

Third millennium Near Eastern sites typically relied almost completely on domestic animals: sheep, goat, pig, and cattle. Our analysis shows that Haji Ibrahim is no exception. Nearly 100 percent of the animal remains represent these four domestic animals, the only wild species is bare. The evidence from the site to date reflects a very small settlement whose inhabitants would have been busy working in the barley fields, tending their small herds of sheep, goat, and cattle, and keeping an eye on the household pig population.

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