STRATIGRAPHIC ANALYSIS OF THE UNIT A9 EXCAVATIONS AT TELL MOZAN, SYRIA

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ABSTRACT

Tell Mozan, a large mound located in northeastern Syria, was formed by the ruins of a succession of ancient cities. Despite its prominent place in the regional landscape, archaeological excavations were only initiated there15 years ago. After a series of exploratory soundings, work has recently focused on the ruins of an Early Bronze Age palace.

The data from A9, an excavation unit which includes most of an early step trench which explored the mound which overlays the palace, has the potential to contribute to the understanding of how Tell Mozan evolved. Even though the data were recorded in somewhat different formats, it was possible to assemble and order it by the use of sketches made from the narrative descriptions provided by the supervisors and the sorting capabilities provided by computer database programs. Once the relative relationships of each stratigraphic element were determined their overall relationship was analyzed by the use of the Harris Matrix.

In the absence of complete ceramics analysis to provide an absolute reference in time, artifacts found in the excavation and thought to be stylistically unique were analyzed to determine the approximate period of their manufacture.

The results from this analysis indicated that Tell Mozan was continuously and actively settled by a large population from the Middle Akkadian Period through the Mitanni Period, subsuming 800 years. A seal from Jemdet Nasr Period may indicate the city developed much earlier.

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1. INTRODUCTION

Proper analysis and interpretation of archaeological excavations involves several disciplines. First, one must understand the regional dynamics that determined why and how the site was formed. Northern Mesopotamia has been extensively excavated for over 100 years and there is a substantial body of literature that describes the development of the region. Since the excavation of Tell Mozan has only recently begun, it is essential to set forth the theoretical basis that should be used to guide the interpretation of the findings.

The specific part of the Tell Mozan occupation addressed in this analysis spans approximately 800 years. Although information about the architecture and artifacts discovered has been recorded, no effort has been devoted to coordinate the results temporally and spatially. Because the focus of the digging has been vertical and not horizontal, it should be possible to reconstruct the formation of this part of the site using Harris Matrices to relatively time-order the building and deposition of artifacts. Data for fixing time by scientific methods such as carbon dating are not available. In the alternative, typological analysis of key artifacts that can be associated with known cultural developments in other parts of the region can be used to establish at least a few absolute time references in the relative sequence.

1.1 *Goals of Study*

The major goal of this study was to determine which of the many excavated elements in Unit A9 (which spans a major part of one the seven hills comprising Tell Mozan) were related by being in use at the same time (strata). To accomplish this, the data from four separate seasons of excavations was cataloged in the order it was deposited. The Harris

Matrix was used as the technique to organize the results and one was prepared for each locus, a basic data recording unit at Tell Mozan. Once a Harris Matrix was developed, it was possible to place all of A9's excavated elements in relative time order by linking Harris Matrices across loci. The absolute place in time for some strata was estimated by analyzing the characteristics of two seals, two figurines, some of the pottery and a technique of building construction.

When strata for this part of the excavation are determined, it is necessary to incorporate the results into the site-wide phase and strata plan. Only then can each element be confidently assigned to a proper stratum.

1.2 *Description of Tell Mozan*

Tell Mozan, identified as the ruins of the large, Bronze Age walled city of Urkesh, is located in the far northeast corner of Syria, near the modern border with Turkey. Just to the north is the Tur Abdin, the southern limit of the Taurus Mountains. It is in the drainage of the Khabur River, a tributary of the Euphrates. Tell Mozan is one of a group of ruined, large, ancient cities in the region (Figure 1). It joins Tell Hamukar as the only two not to have an extant or seasonal watercourse in the immediate vicinity. The Mardin Pass through the Tur Abdin mountains to the north, the Jebel Sinjar to the southeast and the Jebel Abd el-Aziz to the southwest, each of which funneled regional trade, are visible from Tell Mozan.

Regional climate is characteristic of Asian steppes. Annual rainfall (425 millimeters at Tell Mozan) occurs almost exclusively in the late fall, the winter and in the early spring. Overall, rainfall diminishes rapidly as one moves south of the Tur Abdin.

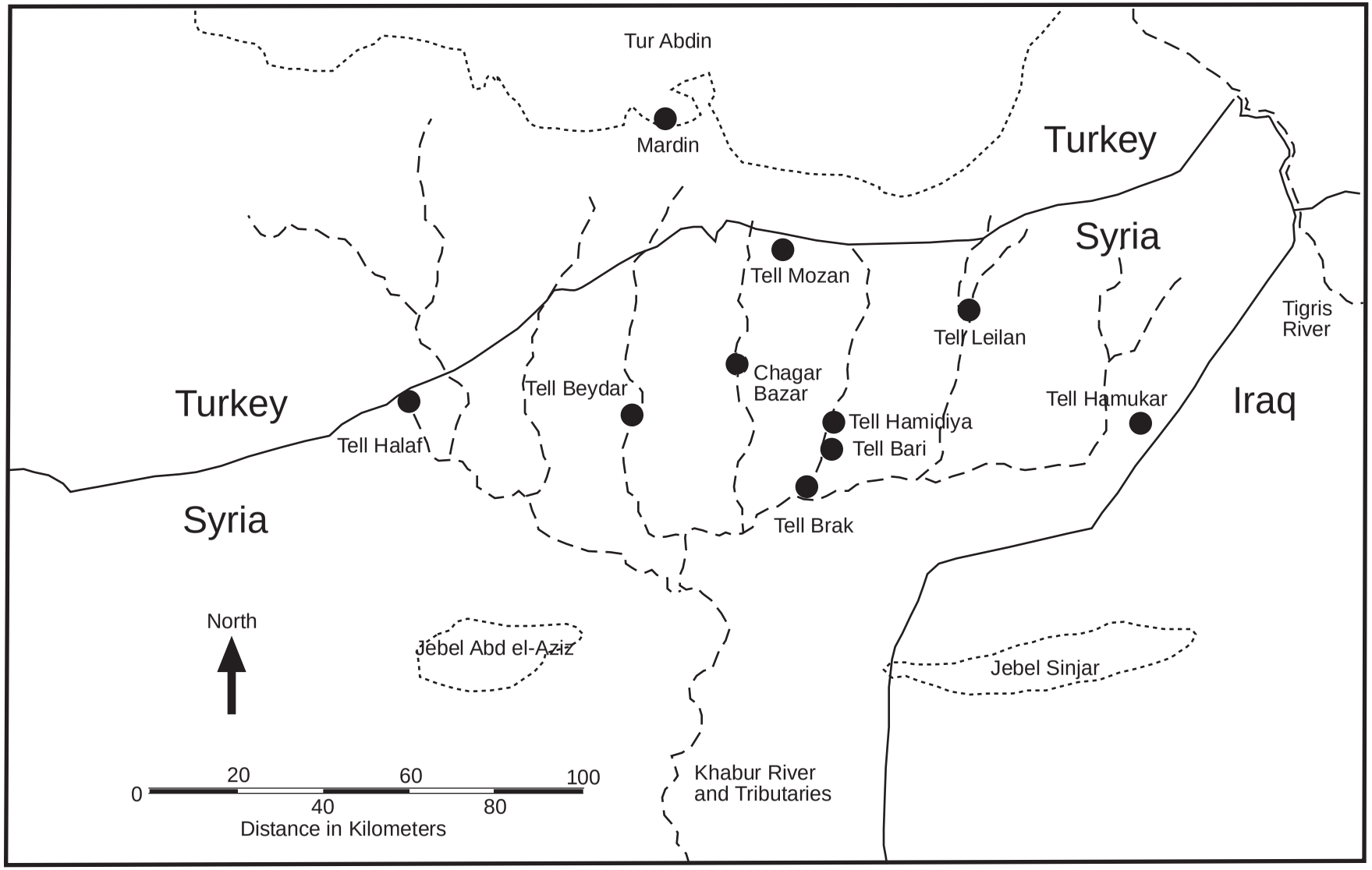


Figure 1

The Syrian Sector of Northern Mesopotamia
(Based on Lebeau 2002: Table I)

Summers are very hot, while winter temperatures are occasionally below freezing. In modern times, the climate is conducive to the growth of a crop of winter wheat and to replenish an aquifer that supports irrigation for growing cotton, fruits and vegetables. In ancient times barley was the prevalent winter crop, probably grown under environmental conditions similar to the present day.

The ruins of generations of successive ancient city-states comprise Tell Mozan. It consists of a central core of about 20 hectares having seven hills elevated about 20 meters above the agricultural plain. This central core is surrounded by a much lower outer ring enclosing about 200 hectares (Figure 2).

1.3 *Excavation Unit A9*

As in any large, seasonal, archaeological excavation, digging at Tell Mozan occurs simultaneously in multiple locations. Excavation units, identified by a letter followed by a number, are allocated to specific parts of the tell. These units, which span a number of standard 5 meter by 5 meter squares, are sufficiently large to incorporate groups of significant architectural features and are manned by multiple teams of local workmen who are directed by an experienced archaeologist (unit supervisor). Since the present focus of the project at Tell Mozan is to define the extent of an Early Bronze Age palace, most excavation units are located in and around the hypothesized locations of walls and courtyards. Generally, units continue to be active over several seasons until the palace stratum has been reached and excavated.

A9 was activated in season Mozan 10 (1997) to explore that part of a palace that extended north of the north boundary of a substantial service wing (AK) containing

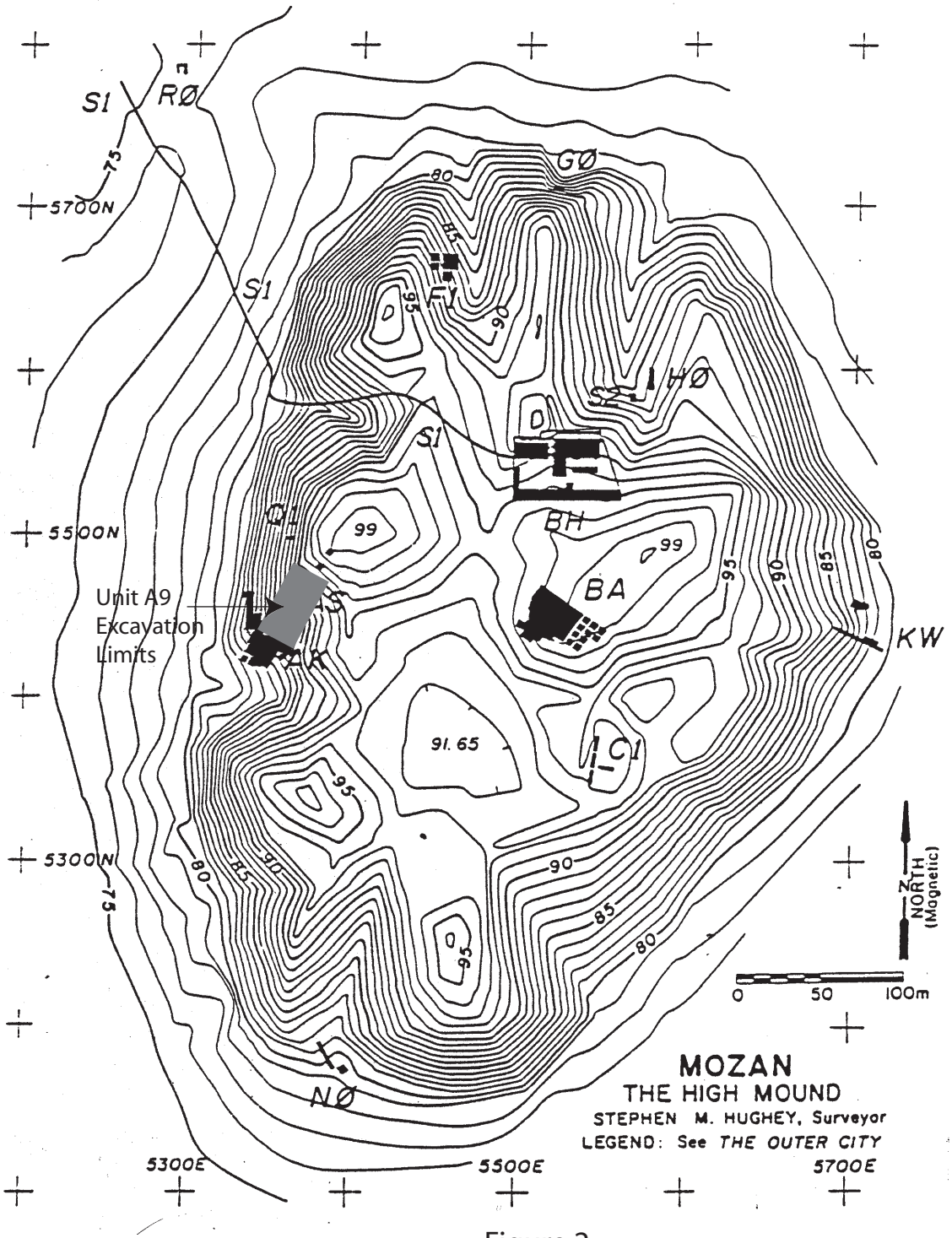


Figure 2
Tell Mozan Topological Map
showing location of Unit A9
(after Buccellatti 1977:33)

artifacts that linked the occupation of the building to a previously unknown Hurrian king, Tupkish. By 2001, A9 had grown to incorporate most of an exploratory step-trench dug in 1990 (MZ4) and the region which lay between excavated houses to the west (A7) and to the southeast (A11) (Figures 3, 4, and 5). Although the results of the A9 excavation have been recorded, they have heretofore not been analyzed.

2. DEVELOPMENTAL CULTURAL CONTEXT

As a large Bronze Age city in northern Mesopotamia, Tell Mozan was a product of a process that, beginning in the eleventh millennium, B.C., saw the transition from hunting and gathering to the establishment of regional empires. The settlement of populations in the Middle East began in Epipaleolithic times as certain groups found themselves in regions where food and water resources were abundant and stable, negating the need for constant migration. In time, small, permanent villages were established in places such as Jericho in the Levant, Jarmo in Iraqi Kurdistan, and Abu Hureyra in northern Syria (Moore, et al. 2000: 5-7). The marker for these transitional villages is the existence of cultivation, which according to Maisels has two preconditions: architecture to provide year-round shelter, and farming and/or herding subsistence to assure food (perhaps stored at certain times) is available where the people reside. (1993: 69-71) As population increased, people began to move to less favorable locations, necessitating the introduction of non-native or husbanded plants and animals. Mechanical technology was used to modify the environment. For example, irrigation allows agriculture in areas not sufficiently rain-fed, leading eventually to the establishment of increasingly larger settlements (cities) (Maisels 1993: 129-130).

Figure 3

Tell Mozan Kite photo showing relationship of Units AS, A9, A7, and A11 with the Tupkish Palace Service Wing (AK) and Formal Wing (AF)

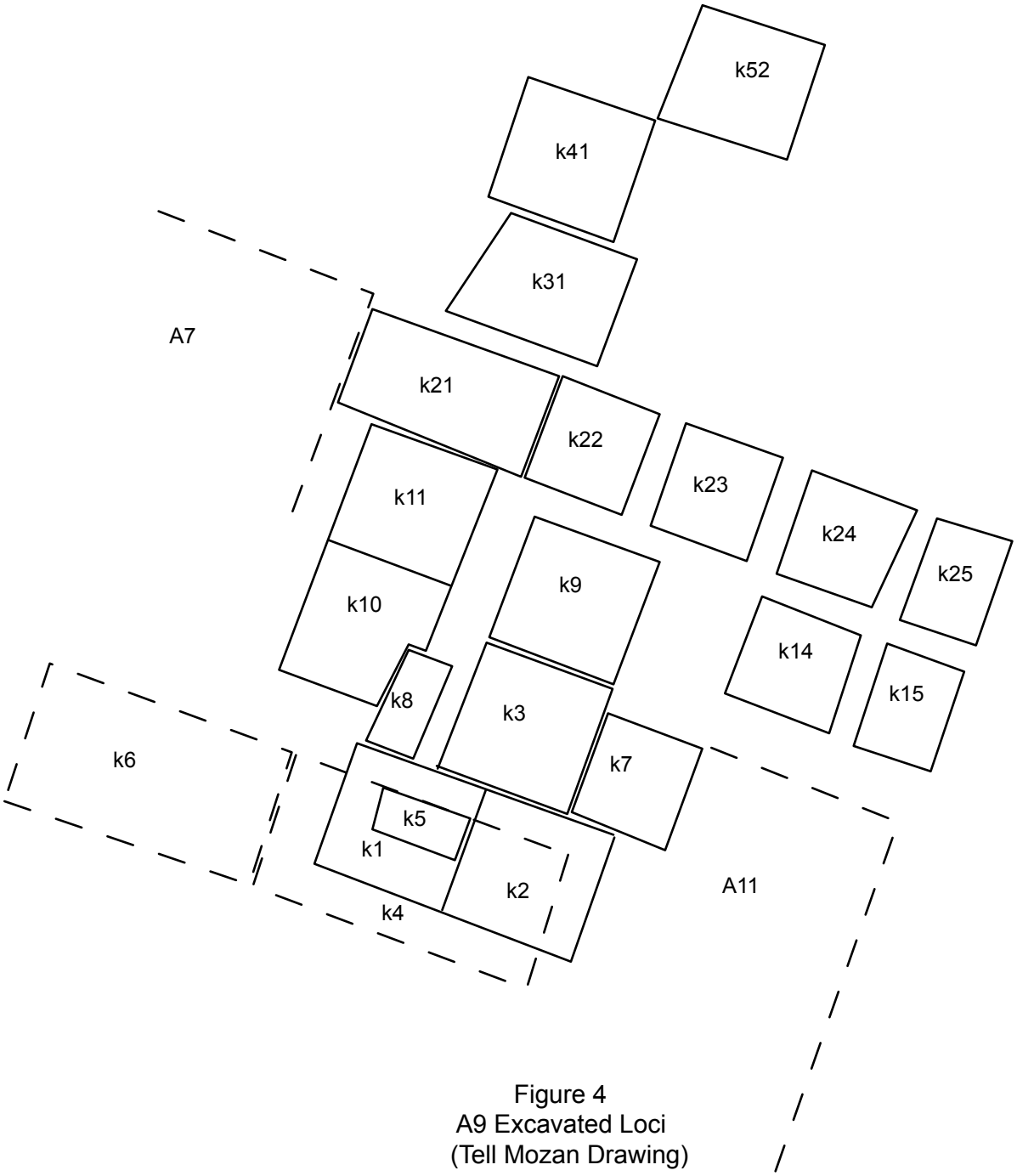


Figure 4
A9 Excavated Loci
(Tell Mozan Drawing)

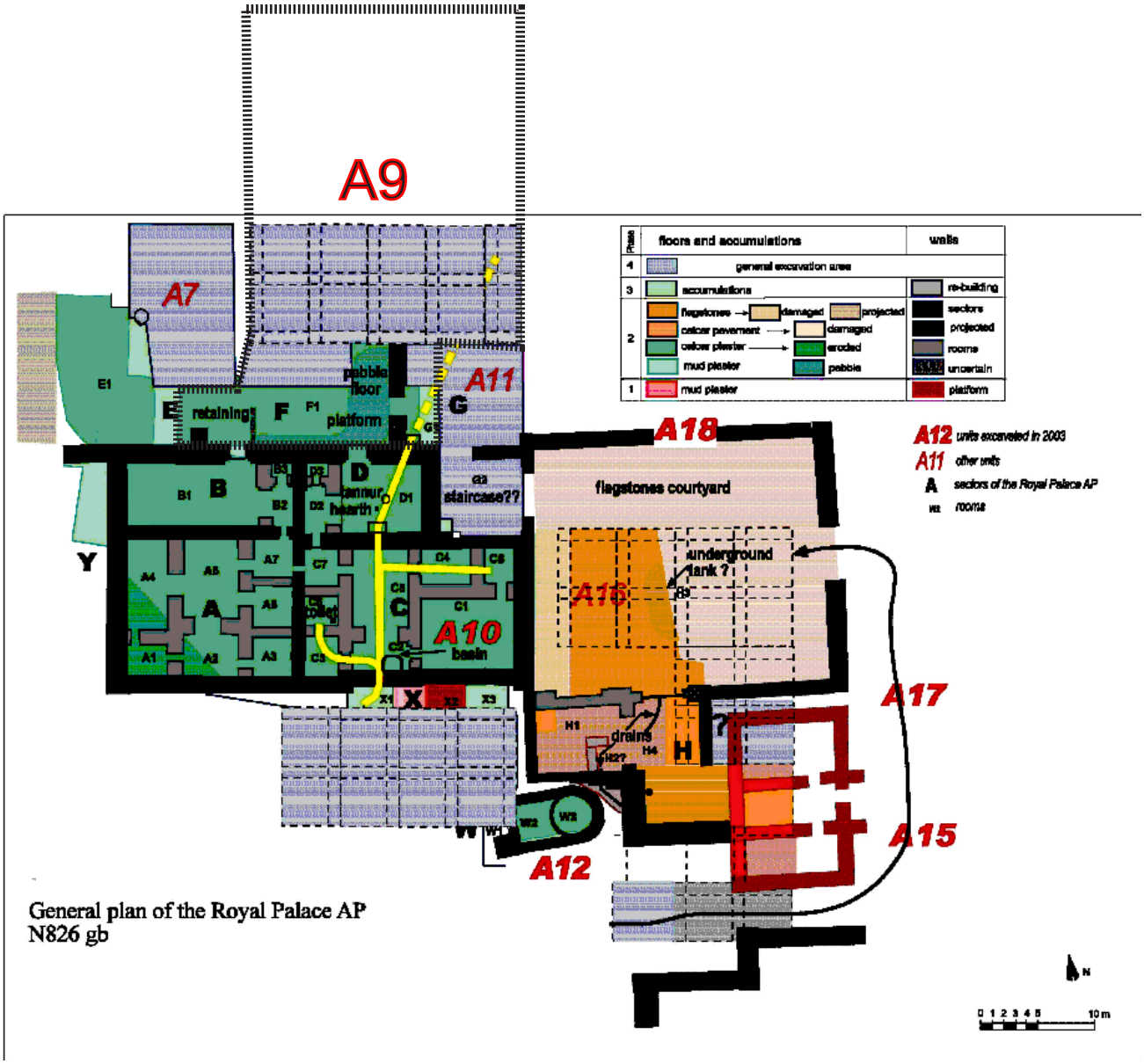


Figure 5

General Plan of the Tupkish Palace
with emphasis on the span of Unit A9
(based on Freehand drawing by Giorgio Buccellati)

2.1 *Southern Mesopotamia*

More is known about the development of cities and city-states in southern Mesopotamia than those in the north because some of the largest of the early cities were found there and, perhaps more importantly, were thoroughly excavated in the early days of modern field archaeology. In addition, the first known written language, Sumerian, was used in the south. Adams, an anthropologist, has extensively surveyed the region and studied the processes by which cities were formed (1966). Oppenheim, an epigrapher, has analyzed ancient texts for clues as to how early Sumerian cities were organized and functioned (1977). City formation occurs as a result of processes that result in stratified, politically organized entities. Villages began to appear where nomadic herdsmen and sedentary agriculturalists interacted. In fact, some modern, rural populations in the region have retained this characteristic of herders seeking seasonal employment in farming villages and exchanging herd products for items grown or made in the village. The Basseri of Iran (Barth 1961), for example, still follow this practice.

However, to sustain the organizational growth, a number of non-self-sustaining production units were integrated (Adams 1966: 48). These included:

1. Wheat and barley cultivation,
2. Garden and orchard cultivation.
3. Herdsmen,
4. Swamp and river subsistence, including reeds, fish and waterborne transportation.

Algaze has studied the imperialistic expansion of southern city states into northern Mesopotamia during the Uruk Period (2001). In his analysis, expansion was triggered by the need to obtain materials, such as timber and metals, not found in the south. Outposts

were established along the Tigris, Euphrates, and Khabur Rivers as well as in the mountainous regions on the western and northern Mesopotamian borders to mediate exchanges and obtain the needed materials. The outposts ranged in size and complexity, from enclaves in already existing cities (for example Tell Brak, which is 45 km south of Tell Mozan) to new settlements at such places as river crossings (for example Habuba Kabira on the Euphrates River (Algaze 2001: 38-45).

2.2 *Northern Mesopotamia*

The following provides an increasing body of evidence that northern cities developed on their own, not as a consequence of colonization. Although no early writing system equivalent to Sumerian has been discovered, there are glyptic objects such as tokens and cylinder seals that hint at the existence of systematic accounting. The first settlements large enough to be considered cities date to the seventh and sixth millennium B.C and are associated with the Halaf culture, characterized by a particularly elegant painted pottery first discovered at Tell Halaf in northern Syria. Halaf settlements, located from present day Aleppo, Syria, to Mosul, Iraq, and north into Turkey, specialized in rain-fed agriculture. There are four features of the culture (Maisels 1999: 136-137):

1. the distinctive painted pottery
2. a round central house with rectangular annexes
3. subsistence which includes wheat, barley, and a variety of domesticated livestock
4. a relatively egalitarian authority system and settlements linked by mutually beneficial exchange relationships (surmised by seal impressions and tokens that tracked exchanges rather than detailing ownership as in the Uruk system).

According to Maisels, the northern Halaf and southern Ubaid (precursor to the Uruk period) cultures emerged in the sixth millennium B.C. (1999: Fig 3.14). Until recently, it had been generally presumed that the Uruk colonies and outposts in northern Mesopotamia that were established for control and trade exercised the dominant cultural influence there. Several archaeologists have questioned that conclusion. For example, Schwartz (2001) points out that a large degree of social complexity existed in the north prior to Uruk expansion in the mid-fourth millennium B.C. He believes that the sites with an abundance of Uruk materials were most likely settlements by refugees from southern Mesopotamia along the Euphrates and Khabur Rivers. A few sites with ambiguous roots had cultural material from both north and south - well established Halaf ceramics as well as some arguably later Uruk-style buildings and cylinder seal impressions. By the third millennium B.C., except for some examples of southern Jemdet Nasr pottery, only northern Mesopotamian Ninevite V wares are found in the region (Schwartz 2001).

Excavations at Tell Brak have yielded a continuous ceramic sequence extending from the middle of the second millennium B.C. back to the beginning of the fourth millennium B.C. A casemate wall was securely dated to 3800 B.C. The current excavators conclude that although the first city-states may have developed in the south, the north may have developed independently on a smaller scale as evidenced by a number of established, prosperous settlements, albeit devoid of early manifestations of writing (Oates and Oates 1997). The presence of a wall may indicate that there was competition among cities and a high level of internal organization. The evidence of continued southern influence includes late Uruk spouted jars, Jemdet Nasr polychrome sherds, and small houses made

from small, rounded-top (*riemchen*) bricks (Oates 1993). Emberling reviewed the record of the earlier Eye-Temple excavations by Mallowan and concluded that it was likely that at the time the temple had been built, Brak was under the dominance of a southern Mesopotamian city. His conclusions were based on the building's large size, characteristic design, and the nature of artifacts found within the temple precinct (2002: 89).

2.3 *Third Millennium B.C.*

The third millennium was marked by intense innovation and development. Buccellati calls it a time of urban revolution and establishment of city states (1981: 20). Since much of the early research was centered in southern Mesopotamia, the periods tend to be identified with major trends in the south. Crawford (2002) distinguishes the following:

1. Jemdet Nasr – early development of the temple as the focus of urban life.
2. Early Dynastic I – temples were the dwellings of priests and gods and also were enclosed by walls. The temple was the sole focus of power – economic, social, and military.
3. Early Dynastic II – the first palace buildings appeared, separate from the temple. Entire cities were enclosed by walls and hereditary succession of kings begins.
4. Early Dynastic III – the palace took over many of the managerial responsibilities in economic, social, and military spheres, while the temple retained responsibility for education. States began to expand their territories.
5. Akkadian – kings were deified and the first international empire was formed. It soon collapsed when, weakened by drought, it was unable to withstand an invasion by Gutians.

6. Ur III – only a few southern city-states maintained extra-territorial contacts. Religion was now practiced in homes, although temples still played a role in keeping traditions and in education.

2.3.1 **Ninevite V**

It appears that development in the north during the third millennium was rapid, although the relative lack of written documents has made assessment of phases much more difficult. Many of the unifying trends must be deduced from regional architectural and ceramic similarities. A style of painted and incised pottery known as Ninevite V was ubiquitous during the first part of the millennium. The incisions occur in horizontal bands and often consist of a series of oblique lines. The painted designs are complex combinations of geometric designs which cover the entire vessel, which often also has an elaborate base. Many of the cities were built on the *Kranzhügel* plan, with a central high mound surrounded by a single circular outer wall at some distance from the center.

Weiss has tracked the development of the Ninevite pottery sequence at Tell Leilan (located about 45 km ESE of Tell Mozan) through a set of deep soundings augmented with carbon dating. Dates were obtained from material stratified in layers ranging from 5500 B.C. through 1600 B.C. Ninevite V pottery was found in levels Leilan IIIa through IIIc, dated from 3200 to 2500 B.C. and corresponding to Early Dynastic I and Early Dynastic periods in the southern chronology. Soon after the construction of a city wall about 2500 B.C., the pottery was made with a fast wheel but without painted or excised decorations, an approach associated with the Early Dynastic III period (2600 B.C. to 2300 B.C.) at other sites such as Tell Brak (1985: 19-24).

Lebeau has performed a regional analysis of stratified third millennium pottery published from excavations in northern Mesopotamia with the goal of establishing a chronology and nomenclature that did not depend on terminology associated with southern sites that had an entirely different development sequence. Although he found that there were as many as four cultural subregions in the area, two pottery types were most characteristic: Ninevite V in the early part of the millennium and Metallic Ware (which may be directly linked to the *Kranzhügel* sites – central high mound surrounded by a single circular outer wall at some distance from the center –in the middle part). In the latter part of the millennium, particularly in the eastern Syrian Jezirah during the Akkadian period, a truncated conical bowl with a flat base was prevalent (a form which is called a *conical cup* at Tell Mozan). These were succeeded in turn by shapes decorated with combed and rope patterns (2002: 5-6).

2.3.2 **Hurrians, Akkadians, and Sumerians**

Hurrians, a cultural group with a language written in cuneiform but not related to either Sumerian or Semitic, began to enter and settle northern Mesopotamia in the late Early Dynastic III period. Although it is believed that they came from the vicinity of Lake Van in Turkey, not much is known about them until they begin to establish their own cities, among them Urkesh (modern Tell Mozan) (Wilhelm 1994).

The Akkadians were the earliest known Semites in Mesopotamia; their major cities were to the north of Jemdet Nasr and the other Sumerian Early Dynastic city-states. Their writing system and culture were heavily borrowed from the Sumerians. However, during the reign of Sargon, the first king of Agade, Akkadians began to overrun and dominate Sumerian cities to the south, as well as sites to the west and north, including

Subartu, the home of the nomadic tribes of the upper Jezirah (Roux 1992: 151-155). Wilhelm suggests that Hurrians could have been among the Subartu (Wilhelm 1994).

Naram-Sin, Sargon's grandson, clearly exerted control over northern Mesopotamia and the Jezirah. He built a palace at Tell Brak and claimed to have made expeditions into the Taurus Mountains to the north and west as far as Ebla. His successor, Shar-kali-sharri, was not able to hold the empire together, and it collapsed after a series of attacks by Gutians, who came from northwest Iran. Roux sees this collapse as a preview of the future fate of all Mesopotamian empires. It was a consequence of rapid expansion, followed by an inability to hold borders or to control internal dissent (1992: 159). Additionally, Weiss believes that this collapse (and others in this region, which is so economically dependent on dry farming) coincided with severe and prolonged drought (1997).

After a relatively short hiatus, Sumerians from southern Mesopotamian city states gained some measure of control over the region. Trade networks with the north were maintained, and ziggurat temples were erected. Power first centered on the city of Ur (Ur III period) then shifted to Isin, Larsa, and other small Sumerian city states after the Ur III empire collapsed. Roux attributes that collapse in part to military pressure from central and west Syrian tribal groups known as the Amorites (1992: 175-177).

2.4 *Second Millennium B.C.*

For whatever reason, the organizational aspects of city-state development in northern Mesopotamia early in the second millennium B.C. are not yet known. Even though Tell Leilan was abandoned (Weiss, et al. 1993), there were a number of large, active settlements. Tell Barri (35 km SE of Tell Mozan) was an administrative center and Tell

Brak was still an important city, the center of a major cult honoring the goddess Bēlet-Nagar. In addition, ceramics characteristic of the Isin-Larsa period in the south, and artifacts linked with Cappadocia at Brak, suggest Brak had an important role in inter-regional trade during the period (Oates, et al. 1997: 141).

Mari, a major city on the Euphrates River to the south of the junction with the Khabur River (about 300 km south of Tell Mozan), was the first Amorite center in the region. The first ruler of consequence was Yahdun-Lim, who conducted military expeditions throughout much of Syria and rebuilt the city walls destroyed by Naram-Sin. Yahdun-Lim had a son, Zimri-Lim, who did not immediately succeed him. Rather, a usurper, Sumu-yamam, ruled for a time. This usurper was was defeated by Shamshi-Adad, the head of another Amorite group (Assyrians) further to the east who was building a regional empire that extended across northern Iraq and northeast Syria from the Zagros Mountains to the Euphrates River. Shamshi-Adad installed his son, Yasmah-Addu, as king of Mari (Dalley 1984: 31-36).

2.4.1 **Shamshi-Adad**

Shamshi-Adad rebuilt Tell Leilan as the capital of his empire, renaming it Shubat-Enlil. According to Weiss (the excavator of Leilan) the rapidity and extent of Shamshi-Adad's influence was remarkable. He seized cities such as Assur, and replaced dynastic leaders at "nodal control points" with his sons. He also established regional trading networks, established systems of tribute and maintained control by using armed force. However, the rise of independent cities, challenges from southern cities, and migrant populations eventually made his empire unstable and it disintegrated after a thirty-five year period, because his sons were unable to maintain control (1985: 27-30).

2.4.2 **Zimri-Lim and Hammurabi**

After a short period of confused leadership, Zimri-Lim, assumed sovereignty of Mari and pushed the Assyrians (those who had been ruled by Shamshi-Adad) eastward. He dominated the north for about 20 years, and organized an effective trade and administrative network. Fortunately, many of the writings of the period were preserved at Mari and provide insight to the cities under his control, including Urkesh (Kupper 1998). At about the same time as Zimri-Lim was ruling the Mari region, Hammurabi ruled in Babylon. Eventually, he conquered Mari, sacked the city, and became the Mesopotamian superpower, although only as a distant overlord in the north (Dalley 1984: 35-47).

2.4.3 **Mitanni**

During the first third of the second millennium, the constant influx of Amorites from the south inhibited the development of Hurrian states. They remained vassals to kings such as Zimri-Lim (Steinkeller 1998). However, the destruction of northern Mesopotamian cities by Samsu-iluna, Hammurabi's son, created a power vacuum. This uncertainty in regional leadership allowed the Hurrians (with leaders having Hurrian personal names and Indo-European throne names), to regain control in the north. This group of Hurrians, known by their state name of Mitanni, was centrally organized and governed cities from Alalakh on the western Syrian-Turkish border to Nuzi in Iraq along the Taurus Mountains. The Mitanni regime dominated the region and served to counter-balance that of pharaonic Egypt. This equality in both power and status was symbolized when Mitanni kings sent daughters to Egypt as wives for pharaohs. (Kuhrt 1995: 289-300). (This transition from the Akkadian concept of building a single empire by conquest

to the Mitanni concept of building practical relationships between relative equals presaged the concept of modern international relations.) Monumental buildings were erected at several northern Mesopotamian cities, including a palace and temple at Tell Brak about 1550 B.C. Eventually, about 200 years later, inter-regional conflicts between the Assyrian, Mitanni, and Hittite empires resulted in widespread destruction in northern Mesopotamia (Oates, et al. 1997: 145-153).

3. DEVELOPMENT OF TELL MOZAN

3.1 *General Site Formation*

Except for a test trench dug by Mallowan in 1938, excavations at Tell Mozan did not begin until 1986, under the direction of Giorgio Buccellati and Marilyn Kelly-Buccellati. Some of the independent core activities (following Adams 1966: 48) which may have led to the establishment of a settlement here include:

1. Adequate rainfall to pursue dry farming with confidence of a harvest of wheat or barley crop yielding a surplus.
2. Large flocks of herd animals that were capable of producing surpluses.
3. Access to metals mined in the nearby Taurus Mountains.
4. Garden and orchard cultivation near springs and seasonal streams.
5. Wild animals for hunting and export.
6. Access to timber.
7. Breeding of animals for transportation, particularly Equids.

The existence of the first four is well-documented. With respect to wild animals, there are several second millennium letters documenting the capture of lions and gazelles for royal sport and exchange (Dalley 1984: 165-167). Timber for building and export

was found throughout the region (Rowton 1967). Breeding of Equids for transportation, trade, and eventually warfare was also a regional enterprise (Dalley 1984: 156-165). Thus, it can be seen that the north had concentrations of specialized resources which, when redistributed for mutual benefit by trade, created the potential for increasing concentrations of people. These were the same dynamics that led to the establishment of cities in the south. Stating the process of city formation in terms of the dynamics of interacting populations, Buccellati and Kelly-Buccellati(1988: 26) see the following social sets as most influential:

1. Dry farmers around Mozan.
2. Agro-pastoral Amorites who tapped groundwater.
3. Montagnards in small settlements in the foothills.

All of this took place in the specific piedmont cultural landscape known as Subartu, and was supplemented by an active trade network that transported the copper and tin found north of the Mardin Pass to other cites in the greater Syro-Mesopotamian region.

In the early years of the excavation, a number of exploratory soundings were made at Tell Mozan by the Buccellati team and several evaluations were made of material from local holes dug either for wells or other utilities. Halaf sherds were found just above virgin soil on the northeastern edge of the main mound. Since these are a horizon marker for the earliest settlements in the region and since the sherds were found in a context suggesting organized deposition, it is possible that Mozan *may* have been among the earliest towns in the region.

3.2 *Early Third Millennium B.C.*

Cups associated with the Ninevite V period were found on a floor surface carbon dated to about 2900 B.C., above the Halaf level in the same well pit. A non-distinctive cooking jar, a midden, and an ash layer were found just above virgin soil in an excavation for a power pylon on the northern edge of the Outer City below the level of the modern plain, more evidence of early occupation of a large portion of the tell. Burials excavated in the Outer City yielded more than 100 vessels and bronze objects, including late Ninevite V vessels and Metallic Ware (Buccellati and Kelly-Buccellati 1998:12-13). In another well excavation conducted under the supervision of the author in Area OH2 in 1998, Ninevite V sherds as well as mid-third millennium sherds from spouted jars were found in the same vicinity of the outer city north perimeter as the grave goods (Urkesh Global Record for Unit OH2). Therefore, there is evidence that not only was the site occupied for much of the third millennium B.C. (and perhaps in the fourth as well), it may have been occupied continuously during that period.

3.3 *Mid-Third Millennium B.C.*

Excavations in Area KW along the eastern slope of the inner city revealed the remains of a large perimeter wall. However, its moat was backfilled with burned material containing spouted jars of a type dated to the Early Dynastic III period. This means that the defensive perimeter must have been moved from the inner wall before the dumping occurred. Further analysis of soundings near the outer ring indicated that cultural material abounds inside the ring while none has been found outside. The Buccellatis concluded that although no direct evidence of an outer wall had yet been excavated, it was probable that the outer ring was the site of a later defensive wall (1998: 17-18).

The first phase of a temple, located on the highest part of the main mound, was also dated to the Early Dynastic III period on the basis of artifacts and carbon dates. It would have towered above other structures at that time and only in the mid-second millennium B.C. was it about as high as the surrounding hills on the main mound, which had grown because of successive rebuilding. The name of the deity honored there is not known, although a stone sculpture that was found near the temple belongs to the first phase (Buccellati and Kelly-Buccellati 1998: 18-19).

A German archaeological team has been excavating Areas B and C along the southern edge of the temple summit as part of a regional study of Bronze Age domestic architecture. They uncovered a stone staircase ascending the temple platform to the north. Ceramics in the staircase trench and platform beneath the temple can be dated to 2700 B.C. (Buccellati and Kelly-Buccellati 2001a: 24-25). Surrounding the southern end of the stairs was a series of houses built one atop the other. As of the end of the MZ13 (2000) season, the German team had established a continuous ceramic sequence securely dated from 2300 B.C. to 1800 B.C., which extended from the late ED III period to the Old Babylonian period (Dohmann-Pfälzner and Pfälzner 2001). In 2001, they found remains of still earlier houses containing even earlier ED III ceramics and glyptics in a deep sounding below those houses that had already been excavated. (Peter Pfälzner - personal communication).

3.4 *Late Third Millennium B.C.*

Ruins of a palace dominate the lower part of the western side of the main mound. Its earliest structures are a stone platform and a "U" shaped underground building, somewhat resembling a very large well with a square addition on the western side. Walls

of the palace that were built later, accommodate the platform and the building, which has recently been identified as a Hurrian temple for invoking the divinities of the underworld (Kelly-Buccellati 2003). Some of the artifacts found in these two structures have been dated to the early part of the Akkadian period, dominated by Sargon (Buccellati and Kelly-Buccellati 2001b: 62). However, additional excavations in 2003 suggest that the platform and the circular part of the underground building may have been built and used in Early Dynastic times.

The palace, which rises behind these two structures to the north, is securely dated to the middle of the Akkadian period. Seal impressions found on storeroom floors of the earliest floors of the service building (AK) name the city, Urkesh; its king, Tupkish; its queen, Uqnitum; and several of their servants (Buccellati and Kelly-Buccellati 2001a). The formal wing of the palace (AF) extended widely to the east and north of the service building and in some places was elevated some 2m higher (Buccellati and Kelly-Buccellati 2000: 135). The most distinguishing feature of AF discovered to date is a large open plaza, paved with large stones, with a flat top surface. Just to the east, on a thin accumulation overlaying architecture associated with the plaza, were found seal impressions of Tar'am-Agade, daughter of the late Akkadian period emperor, Naram-Sin (Buccellati and Kelly-Buccellati 2002c).

3.5 *Transition to Second Millennium B.C.*

The service building remained in use after the formal wing of the palace was abandoned. This is evidenced by a continuous accumulation of ceramics that reflects a gradual transition from the Simple Ware Tradition (Simple and Wet/Smooth Wares), used in the time of Tupkish, to a ceramic tradition called Bitumen Use (because that

material was extensively employed for waterproofing, decoration, and repair). Cup shape also changed from conical to a form with the widest part near the base. However, pebble-tempered Rough Ware used for cooking and storage continued unchanged from its first appearance in the ED III period (Buccellati and Kelly-Buccellati 2000: 146-152). Five correlates with the southern Mesopotamian chronology were identified:

1. Sargon in the Akkadian period.
2. Tupkish and Tar'am-Agade in the Naram-Sin Akkadian period.
3. Mid-to-high floors in AK at the end of the Post-Imperial Akkadian period.
4. Early post-palace settlements above the AF floors in the Ur III and Isin-Larsa periods.
5. Later Old Babylonian post-palace settlements having Khabur Ware ceramic assemblages (characterized by pots and jars decorated with horizontal bands and/or geometric patterns painted in black, red, and brown) (Buccellati and Kelly-Buccellati 2000: 152-153).

The 2001 excavations along the projected eastern wing of the palace exposed structures from two distinct periods. At the lower levels was the southeast corner of a foundation for a building that was made with undressed large stones. Just to the south there was also a mudbrick wall running north to south, built of a single course, and placed just to the west of a surface paved in stones. More importantly, there was evidence for several phases of the Khabur period to the east of and overlaying Sector H of the palace (formal flagstone floor). In this part of the mound, Khabur houses were found just below the modern surface of the tell, and they, in turn, abut and overlay pits containing Khabur material. Two kilns used to make Khabur pots were found dug into the fill of the pits,

providing solid evidence for a major Khabur period industrial and residential neighborhood here (Buccellati and Kelly-Buccellati 2002b).

Excavations by the German team on the southern part of the mound have revealed the remains of a very large building, inside of which are seal impressions that positively link a trader (Puŝŝam) with southern Mesopotamia. This conclusion is further strengthened by the design of the building, which has a number of magazine-type rooms suitable for storage. Khabur period houses have also been excavated in the vicinity. In fact, this part of the mound contains a continuous sequence of ceramics from the Early Dynastic II period through the Khabur period (Dohmann-Pfälzner and Pfälzner 2001).

Nuzi ware sherds were found in the remains of small private houses located just under the surface at the highest part of the tell, where the expedition house was constructed. This marked the last phase of organized settlements at Mozan, and can be dated to the period of maximum Mitanni expansion in the region (Buccellati and Kelly-Buccellati 1998: 32). In the 2003 excavation season, additional Nuzi ware deposits (characteristic cup bases) were found in the ruins of houses near the top of the hill to the southeast of A9 (Giorgio Buccellati – private communication).

3.6 *Phase and Strata Sequence*

The directors have generated a working hypothesis of the occupational sequence of the tell. It is being constantly revised to incorporate the results of the excavations. The latest version was published after the 2001 season and is reflected in Table II(Buccellati and Kelly-Buccellati 2002a: Abb.2). Since the Syrian periodization is still under development, the dates and the nomenclature used are based on observations at Tell Mozan, tempered by definitions generally regarded as regional standards. Seven distinct

phases of stratification, numbered from bottom to top to reflect deposition, have been identified for Tell Mozan. Some of the phases have been subdivided to reflect distinct building and related continued reuse of the same structures. As is the custom, strata are numbered from top to bottom to reflect the order of discovery. There are also substrata that reflect continued refinement based upon discovery of related material as the scope of the excavation continually expands.

4. PISÉ CONSTRUCTION

From time to time in the A9 excavations during the 1999 and 2001 seasons that were well above the palace floor of Sector F, the pickmen reported encountering what they believed to be unusually hard pockets of accumulation, some of which were recorded by supervisors in field notes. Similarly, the German team encountered wall foundations made from what appeared to be poured mudbrick material. The 1990 step trench excavations also revealed the eroded remains of a "mud wall" in what is now Locus 11, lying just under the modern surface of the tell. Further investigation during the study season of 2002 revealed that the following were all constructed of poured mudbrick:

1. A wall founded on stones in Locus 9 and seen in section.
2. The 1990 wall in Locus 11.
3. Another earlier wall seen in section in Locus 11.
4. A third wall in Locus 11 perpendicular to the one in 2. above.
5. The foundations for a monumental wall that begins in Locus 21 and runs north for an unknown length.
6. Two perpendicular intersecting walls seen in section and forming the corner of a building in Locus 24.

7. The foundations for a wall in Locus 52.

The hardness of some of these structures was tested with a pocket penetrometer, which is an instrument that measures the resistance of an unconstrained soil sample to crushing. Each greatly exceeded the instrument limit of 4.5 kg/sq cm, while the surrounding accumulations were well within the instrument's range. In fact, it was very difficult to get penetration of the structural material with as much force as could be applied by hand. Therefore, the issue became whether the appearance and use of this material marked a technological transition that could be used to identify a particular phase in the overall sequence.

Due to restrictions on the export of material from Syria, samples could not be brought to Columbia for testing and evaluation. Therefore, the preliminary analysis must be grounded on library research. Nevertheless, it is clear that the material used to construct the walls is what is now called rammed earth or pisé.

4.1 *Characteristics of Pisé*

The material is a matrix consisting of a mixture of soil components and water, which is then usually put into a form where it is compacted by pounding with a heavy, flat object from above. King (1996: 52-55) analogizes the result to sedimentary rock (conglomerate) formed when successive layers of material are naturally deposited atop each other. It is very important to exclude organic material from the matrix. The ideal mix should include gravel, sand and clay. Particles that comprise the clay component must be formed from the leaching of rock. This assures that the clay is composed of "long, plate-like crystals with ionic charge" that electrically attract each other and water.

Soil that is found naturally is often sufficient; however, in modern applications, fly ash, lime or Portland cement is often added as a binder. It is critical not to include too much clay, as it is subject to cracking as the mixture dries. Compaction increases mixing, forcing the particles to fit together more closely and minimizes air pockets, which would weaken the matrix. Historically, ramming has been done with a hand-tamper, a block of heavy material fitted with a pole for a handle (Easton 1996: 147).

In fact, a properly built rammed earth wall is stronger than an equivalent one constructed of mudbrick, because there are no mortar joints that would be subject to slippage under the stresses of environmental elements such as wind and temperature variations. In summary, the ideal mix, resulting in a rock-like material when it dries, consists of a blend of clay, sand, gravel, water and optional binders, with a minimum of silt and organic matter.

Properly constructed rammed earth buildings are long-lived. Houses with appropriate roofs and foundations (which may also be pisé) which have been properly maintained have lasted for hundreds of years in wet climatic conditions. For example, an English cottage built of cob (a material similar to pisé) has been occupied by the same family since Elizabethan times (Williams-Ellis, et al. 1947: Plate 29). Elsewhere, portions of the Great Wall of China were built of rammed earth some 5,000 years ago (Easton 1996: 4), and present-day repairs still make use of this construction technique (Hessler 2003).

Tauf is a similar mix of the same materials which is applied in layers to a surface and formed by hand. Typically a builder places a layer about 10 cm thick on a foundation and moulds the sides vertically. After it dries for a day in the sun, a second layer is

applied, and so on until the wall reaches the desired height. Braidwood observed that just as in modern brick-making, straw and grass were added as temper to prevent cracking, perhaps because, lacking the compaction of ramming, the clay could not be thoroughly mixed with the other components as required by pisé (Moorey 1999: 302-304).

Wall thickness is another variable that must be determined by a builder. Easton (1996) suggests that a 60 cm wide wall, resistant to earthquakes and wind loading, can be safely built to a height of about 3 meters in a modern pisé structure, particularly when cement is added as a binder. It is also possible to build multiple stories and incorporate arches made from pisé into the building. Rectangular openings for windows and doors capped by lintels can be formed as the construction proceeds. A wide variety of roofs incorporating pitches appropriate for the climatic conditions can be attached. In summation, pisé structures are strong, durable, and can be built using simple technology and materials.

4.2 *Use in Mesopotamia*

Pisé construction is found in some of the earliest settlements excavated in northern Mesopotamia. Tauf walls were found in ninth millennium B.C. strata at Nemrik, a pre-pottery Neolithic village near Mosul in northern Iraq (Moorey 1999: 304). In Jarmo, in east-central Iraq, which is dated to the seventh millennium B.C., tauf walls were found to be built on stone foundations (Oates and Oates 1976: 83-84).

The closest documented use of pisé as a construction material for monumental buildings in the Khabur region was at Tell Brak. There, pisé founded on mudbrick was used to construct a platform 5.3m wide as part of a very large, late third millennium

(Akkadian and post-Akkadian) building that faced the Naram-Sin Palace across an opening which may have been one of the city gates (Oates, et al. 2001: 73-87).

At Tell Mozan the German team has discovered pisé-founded mudbrick buildings to the west of the Puŝŝam House, which is located in the residential area to the south of the temple (Peter Pfälzner: personal communication).

4.3 *Use at Tell Mozan*

Use of pisé as a construction material for walls and foundations has been a common, worldwide construction practice for many millennia. It is ubiquitous in northern Mesopotamia. One may surmise that empirical practices were used to gauge such design parameters as wall thickness for a building of desired height, constituents for the soil mix, materials used to build forms to contain the matrix until it dried, and tools to mix and compact the pisé. At Tell Mozan we have observed extant walls of various thicknesses, all of which, unfortunately, have been so badly eroded that we do not know what the original buildings looked like. Compounding the problem is that pisé is difficult to detect while excavating. As it is made from local materials, a wall can be detected only by recognizing the difference in hardness between it and the surrounding living accumulations, fill, or aeolian deposits. In A9, several of these walls were dug through; now they can only be analyzed as they appear in section. The forms into which the wet pisé was poured to fashion the wall were probably made of wood, which would not have been preserved over such a long period of time. It is also possible that the pisé was poured like tauf, in thin layers which would have been smoothed by hand or with tools.

The monumental wall at Tell Brak shows finger impressions made in the process of hand forming the tauf (Oates, et al. 2001).

There is no evidence that material equivalent to modern Portland cement was available to help bind the constituents of pisé. However, certain byproducts of pottery making can be used to help. We have excavated four kilns in Areas 7 and 15, not far from the pisé walls and foundations in A9, which can be roughly dated to the same time period (second millennium B.C.). A ceramics manufacturing specialist, who helped excavate the kilns and analyze their contents, observed (in a note in the Urkesh Global Record for Unit 15) that alkaline compounds were a byproduct of the ash in each of these kilns. She opined that it may have mixed with the local soil to form the unusually hard crusty accumulations near the kilns. (In fact, the deposits that she observed may have been an unexcavated pisé wall.) King (1996: 54) specifically mentions a similar byproduct of coal burning, fly ash, as one of the modern materials that can be used as a stabilizer. In summation, if a stabilizer was needed by the builders at Urkesh, it was readily available during the time the walls were being built.

Although a wooden mallet with a vertical handle is the most common modern ramming tool, other types could have been used. One possible candidate, found lying near a wall with a pisé foundation in Locus 52, is a flat-bottomed circular basalt stone with a hole in the center, resembling a giant donut. The diameter of the hole was small and its interior surfaces were rough, indicating that it would not have made a good door socket, a common use for stones of this general shape at that time. Also, it was not found in association with a known doorway. Use as a grinding tool cannot be ruled out, but it is

an appropriate size and weight that would be ideal for use as a tamper when fitted with a long handle.

Therefore, we can conclude that, at Tell Mozan, pisé was used as a building material over an extended period of time, probably at least 300 years. Regionally, it is so temporally and spatially ubiquitous that it cannot be used as a period or dynastic marker. However, its continued use over time at Mozan may reflect the skills and preferences of a particular cultural group. The only known group to have been at Mozan for that time period is the Hurrians. To the extent that any conclusions could be drawn, this particular region of the tell may always have been a Hurrian neighborhood, particularly since the hills of the Tur ʻAbdin, gateway to the northern-mountain source of Hurrian culture and mythology, are always in view from here. Indeed, the Hurrian king Tupkish built his palace on this hill.

5. URKESH GLOBAL RECORD

Stratigraphic analysis is an important task following all excavations at Tell Mozan. To that end, the field archaeology there concentrates on what Buccellati (1997) calls *emplacement*, the "disentanglement of elements in the ground, and their accurate documentation." Only when emplacement has been fully studied can one proceed to infer from the spatial relationships when and why the recovered material ended up where it did, a process Buccellati calls *deposition*. Of course, depositional analysis also takes place at Mozan and forms the basis for hypotheses that govern excavation strategy. It is a key component of reports and publications used by other regional field archaeologists and scholars.

5.1 *Specific Application*

The most important part of this approach is to document the excavation in a way such that it can be fully used soon after each year's excavation season by other researchers who were not on scene for their own analysis. To that end the data are organized in a computer-based Global Record which is scheduled to be published and available through CD or website. Data are gathered and immediately recorded by trained observers on scene and entered into a computerized database as soon as possible. Artifacts are similarly evaluated and recorded.

A special grammar has been developed to focus and confine the form (but not the content) of the observations. Its functions are similar to the grammar for a human language, which organizes the content of individual expression so that it can be understood by another person. For example, ten specific depositional verbs list all the possible configurations of one element (artifactual or architectural) with respect to how it contacts another (See Table I). Similarly, in describing color of pottery or soil, choices should be made among those presented by a recognized standard, the Munsell color charts. Certain specified information is required for each class of object. For example, tabular lists of features have prescribed definitional codes, must contain information about location, composition and color, and must contain one of the depositional verbs to relate it to adjacent features, among other things.

There is a hierarchy of descriptive terms for each constituent, assuring that data can be unambiguously filed, and more importantly, easily searched, cross-referenced, and retrieved to meet the requirements of a broad range of future investigators. For example,

VERB	EXAMPLE OF USE	DEFINITION
Cuts (cu)	pit *cuts* floor	truncation
Intrudes (in)	pit *intrudes* fill	insertion
Leans Against (le)	jar *leans against* wall	partial contact at top
Rests On (re)	jar *rests on* floor	partial contact at bottom
Abuts (ab)	floor *abuts* wall	adjacency of edges
Bonds With (bo)	wall *bonds with* wall	interlocking of edges
Covers (co)	fill *covers* wall	total superposition
Overlays (ov)	brick *overlays* pit	partial superposition
Caps (ca)	lid *caps* jar	matching of edges
Sits In (si)	pottery *sits in* fill	matching of sides

Table I
Tell Mozan Lexicon of Depositional Verbs
(Taken from Buccellati 1997: 19)

an element, the minimal stratigraphic or typological constituent of data, is either a stationary (feature) or movable (item or lot component). Even elements whose existence may only be presumed by observed or inferred evidence are included (for example, a foundation inferred by impressions of large stones, which had been removed in antiquity, on adjacent accumulations). Features can be aggregated to define architecturally significant clusters.

In addition, the archaeologist who observes the excavation of an element also writes a narrative about what was observed in the process. The constraints are few. Obviously the experience and training of the observer affect the quality and quantity of the written comments. Time is another limiting factor. Typically, units have at most two archaeologists assigned at the site to perform a number of functions. There may be upwards of thirty workmen to direct, there may be three or four locations within the unit where digging is being conducted, data need to be entered in a timely manner at the dig house, and specialists need to be consulted and their on-site work coordinated. Important features must be measured, photographed and drawn. All of this notwithstanding, whatever is written at the moment of excavation is of more value than the most erudite opinion made at some later time, even by the original author. All comments have some value to the understanding of deposition and are preserved in the record.

The location of what has been excavated is also an important part of the Global Record. The precision required for a given element must be tempered by the time required to perform and record the measurement. Artifacts known to be, or suspected of being vital to understanding the depositional process (seal impressions, bronze spear points or whole pots for example) are measured to a precision of 1cm in three coordinates

referenced to surveyed markers scattered about the locus. Other artifacts (sherds or isolated bones for example) usually found within an accumulation are located to the centroid of the volume of the accumulation needed to yield one standard container of pottery (a "q-lot").

Other types of records are also important tools to understanding deposition and the overall historical context of the site. Each artifact is carefully measured and described. Some are extensively analyzed. Some are drawn and photographed, as are sections. Key architecture is measured, drawn, and photographed. All material, regardless of the source, is systematically indexed, assembled in digital formats, and filed by specific unit, where it can be accessed through a data CD or the Urkesh website by anyone who wants to view and use the data. As in any other archaeological project, analytical reports, articles, and books are published well after the excavation season. Appendix 1 is a short exemplar showing how the data system is maintained in the field.

5.2 *A9 Global Record*

Major excavations in what now is A9 have taken place in four major seasons from 1990 to 2001. Figures 3 and 4. In addition, small projects to amplify and clarify data have been undertaken in 2000 and 2002. The Global Record for each of these seasons has strong and weak points which are briefly explained below. None of the data sets is perfect or complete due to a variety of factors ranging from records that were temporarily inaccessible to data that were recorded using an incompatible format. However, in almost every case it was possible to reconstruct useful information or reorganize it a way to understand what was recorded.

5.2.1 **1990 Season (MZ4)**

These excavations were in the first series that explored and defined the site. Area AS encompassed a step trench, consisting of a string of 5m squares running approximately north to south, from the top of the highest hill of the tell to the bottom of that hill, paralleling the previously discovered third millennium city wall. Later that season, the trench was subdivided in to units A1 through A4 to allow for exploration in more detail. At the time of excavation, the present data system was still in development. However, the data were collected and organized so that it is possible, with the exception of the precise measurements of position, to translate the results into the current system.

Lists of significant architectural elements and accumulations (features "f"), and the squares (loci "k") were compiled to identify where they were located within AS. Features were numbered in the order they were excavated, so one can sort and segregate to get the excavation sequence for each square.

Apparently each of the supervisors for the succeeding units (A1 through A4) had their own interpretation of how features should be numbered. Some started anew, while others continued the AS number series. A2 data (locus k10 for the 2001 season) were very sketchy, listing only some of the features. A3 data (loci k11, k21, and k31 for the 2001 season), although incomplete, were relatively comprehensive and listed features, loci, q-lots, special interest artifacts (items "i") and included a running narrative description which was useful for synthesizing missing information. A4 data were very sketchy, but had a useful section drawing of the north baulk of k41.

There was an attempt to assign some features to the strata known at this early period of excavation, but it was not useful for the current analysis.

5.2.2 **1997 Season (MZ10)**

This was the first season that A9 was designated. It included the sector of the palace (E) that was north of the kitchen and storerooms of the service building (AK). Loci k1, k2, k3, k4, and k5 were excavated. By this time, the computerized data system was fully developed. Available data include an amalgam of hand-written and typed data sheets, computer versions of what data and narrative exist, sketches of features executed periodically throughout the season, and some black and white photographs. Most features are listed by locus, described, and roughly located. Therefore it is possible to reconstruct the stratigraphic record with some confidence. There are large gaps in information about q-lots and precise location data for features and items. In addition, the pottery analysis is not available and sections are poorly drawn. Finally, the supervisor did not assign features to strata. All the problems notwithstanding, the data base can be simulated with relatively few assumptions and a rough stratigraphic analysis can be performed on it.

5.2.3 ***1999 Season (MZ12)***

In this season, loci k4, k6, k7, k8, and k9 were excavated, many to the level of the palace courtyard. By this time, the directors had required that each unit supervisor certify that all data had been recorded and entered. Furthermore, each unit produced a CD on the last day which incorporated all elements of the record. Some work to clarify and expand upon the results was also performed in a subsequent study season. As a result,

the data set for MZ12 is very complete. Most features, items and q-lots can be located to a few centimeters. All have at least a partial set of associated attributes. Some sections are hard to interpret, but there is a complete set of excellent digital photographs of the architecture, many of the sections, and the important objects. Limited analysis of pottery was conducted for some accumulation features just above the courtyard floor. The spatial relationships between features were recorded using the lexicon of depositional verbs, so their stratigraphic relations can be straightforwardly determined. All features were assigned to strata. The original assignments will be reconsidered as a part of this effort.

5.2.4 **2001 Season (MZ14)**

The goal of the MZ14 season in A9 was to understand the links, if any, between previous seasons' excavations in Area 7 to the west and Area 11 to the southeast. During MZ14, new loci were excavated and some associated with the MZ4 step trench were cleaned, re-analyzed and aligned with the current grid system which had been rotated to conform to the orientation of the palace. The specific loci excavated were k10, k11, k14, k15, k21, k22, k23, k24, k25, k31, k41, k51, and k52. This data set is very complete, although not perfect. All features, items and q-lots can be precisely located. In addition to the digital data set, daily progress sketches were prepared for all loci showing the location of features and q-lot centroids, which in turn facilitates stratigraphic analysis. Excellent digital color photographs have been made of all architectural features, many sections, and selected objects. Some drawings of sections and objects are available and some use has been made of the capability of computer graphics programs to illustrate photographic and scanned images to facilitate analyses. A few sherds have been drawn, but pottery lots have not been cataloged. Stratigraphic assignments were not made

because all unit personnel were reassigned in the final weeks of the season to assist in the excavation of Area 15, part of the formal palace possibly including the entrance. The gaps notwithstanding, a data CD was made for the season.

6. STRATIGRAPHIC ANALYSIS

After the data sets from the four individual excavation sets were reviewed, each contact between features was assigned an appropriate depositional verb. The contact for many from early seasons and for most from later seasons had been correctly entered by the excavator. Those with no assignment were given one based on the best available evidence, including the daily narratives, section drawings, photographs, and sketches made at the time as well as contemporary sketches made by this writer as he reviewed the available narratives.

All feature numbers, loci, and relationships for a particular season were entered into an Excel database and sorted, first by feature number, then by locus, to get the emplacement sequence and relationship for each. This is necessary because features are assigned on a unit basis by the supervisor in numeric order, as they are excavated. Sequentially numbered features often appear in loci located far apart.

The Buccellati system also envisions that the unit supervisor will assign each feature to an appropriate stratum contained in the current Phase and Strata Sequence. (See Table II) An initial attempt to do this for A9 features revealed that the strata were not identical and that the deposition here was of such a nature that a separate sequence needed to be developed for A9.

phase		Mesopotamian periodization	*W sr*	Stratum	sub-sr	description of stratum
6	**no occupation**	**modern**		**1**		**surface wash and erosion**
				2		**sod layer, top soil**
				3		**disturbed upper layer**
				4		**removal of ancient stones; gully wash; laminations**
				5		**modern burials**
		ancient		**6**		**brick decomposition**
5	**5c maximal expansion and great collapse**	**Old Babylonian - Khabur 1900-1600**		**7**		**houses, graves and extra-mural work activities**
					a	great brickfall
					b	erosion
					c	abandonment
					d	minor rebuilding
					e	higher accumulations within houses, scattered occup. outside
					f	leveling and structural build-up of houses; first floors/accumul.
	5b further expansion over scattered occupation			**8**		**houses, graves and extra-mural work activities**
					a	higher accumulations within houses, scattered occup. outside
					b	leveling and structural build-up of houses; first floors/accumul.
	5a reclamation over scattered occupation			**9**		**(houses, graves and) extra-mural work activities**
					a	scattered occupation
					b	(houses: not in evidence)
4	**4b middle settlement north, scattered occupation south**	**Isin-Larsa 2000-1900**		**10**		**houses**
					a	higher accumulations within houses, scattered occup. outside
					b	structural build-up of houses; first floors/ accumulations
				11		**burials**
	4a lower settlement north, scattered occupation south	**Ur III 2112-2004**	***B4***	**12**		**houses**
					a	higher accumulations within houses, scattered occup. outside
					b	structural build-up of houses; first floors/ accumulations
				13		**burials**

3	**3b continued re-use of palace dependency**	**Post-imperial Akkadian 2192-2112**	***B5***	**14**		**erosion**
				15		**abandonment; stones removed from earlier bldngs**
			B6	**16**		**higher occupation of palace dependency**
					a	accumulation within AK walls and above destroyed areas of AF
					b	wall fall and patching of AK building (no rebuilding proper)
				17		**middle occupation**
					a	accumulation within AK walls and above destroyed areas of AF
					b	re-use of walls (discontinuing of earlier installations)
	3a destruction and first re-use under Tar'am-Agade	**Naram-Sin / Shar-kali-sharri 2218-2193**		**18**		**first re-use of AK and AF**
					a	AK: first accumulation that disregards lower installations AF: first accumulation above pavements (largely missing)
					b	AK: abandonment of earlier installations AF: destruction of areas adjoining AK
2	**construction and occupation of Tupkish palace**	**Man-ishtu-shu / Naram-Sin 2240-2218**	***B7***	**19**		**construction and first occupation of AK, AF, underground structure W**
					a	accumulation within AK and in courtyard; nothing left in AF
					b	extensive packing below first floors of AK and AF
			B8		c	building of walls in AK and AF
1	**pre-palace**	**Sargon/ Rimush 2334-2270**		**20**		**accumulations in A12; lower portion of W2**
				21		**platform (X) unidentified structures in A1 and A5**

Table II
Phase and Strata Sequence D for Area AA with typological corrections to underground structure W
(From Buccellati and Kelly-Buccellati 2002a: Abb.2)

6.1 *Harris Matrix*

Although an excavation-wide computer program is being developed to exploit the range of depositional verbs to extract the depositional sequence from the emplacement database, it is not yet operational. Therefore, it became necessary to use the Harris Matrix for analysis of deposition. Harris' system (1989: 36) recognizes but three depositional relationships between units of archaeological stratification:

1. The units have no direct stratigraphic connection.

2. The units are in superposition.

3. The units are correlated as parts of a once whole feature that was divided by another after it was deposited.

The two systems are easily reconciled. Some of Buccellati's depositional verbs apply in almost all cases to objects rather than features (for example, whether a jar *leans against* a wall or *rests on* a floor or whether a lid *caps* a jar). In other cases Buccellati's lexicon addresses horizontal relationships which are not a part of Harris' system (for example, whether a wall *abuts* another or *bonds with* another). However, many of the depositional verbs describe relationships recognized by Harris (for example, whether one feature *covers* another, *overlays* another, *intrudes* another, *cuts* another, or *sits in* another). Banning (2000: 259-264) points out that the Harris system is "built from the record of all *unequivocal* relationships between layers, interfaces, and features and is essentially like a … flow chart". The Harris Matrix is a way of displaying the time when features were created in sequential order by means of superimposed boxes, connected by

straight lines. This diagram only addresses non-redundant superpositional relationships and displays them such that the oldest unit is at the bottom and the youngest units are at the top. Other physical relationships are not indicated because they do not contribute anything to the understanding of the stratigraphic sequence.

Cuts for pits and walls create a perceptual problem in that they are later features which intrude upon earlier ones. Thus both occupy the same depths, but were formed at different times. Likewise the wall or the fill of a pit will have been deposited later than the cut that was made for it. This problem is resolved by assuring that the pit is depicted as a vertical sequence, beginning with the fill placed at the top, followed by the cut, and followed by the feature that was cut.

Lenses or pockets of material fully contained within a homogeneous accumulation are problematical in that, although the process of forming the accumulation went on for a longer period of time than it took to form the lens, there is no mechanism to depict the sequence since each is assigned only one block in the diagram. This problem was resolved by depicting them as linked, parallel events.

Once the Harris Matrices are formed, the features can be grouped to facilitate the identification of strata and phases by using such factors as constancy in elevation and horizon markers. Appendix 2 contains the Harris Matrices that were constructed as a part of this research for each locus and which provide the basis for the discussion that follows.

7. DESCRIPTION OF ARCHITECTURE

Although it would be impossible in a work of this size to catalog each feature, this section briefly describes the important architectural elements associated with each locus which contributed to the analysis immediately following.

7.1 *1997 Season (MZ10)*

1. A9k1 – This locus, which began at the lowest natural level in the unit, was eventually incorporated into k4. It included natural accumulations and gulley wash from higher elevations as well as pits.

2. A9k2 – This locus, just to the east of k1, contained natural accumulations, pits, and a typical Khabur period tomb (a5) that was dug from above and lined and capped with mud bricks. It was eventually also incorporated into k4.

3. A9k3 – This locus, to the north of k1 and k2, up the slope and offset from the grid to incorporate what was hypothesized to have been a major north-south palace wall. It contained a number of pits and installations suggesting scattered occupational use.

4. A9k4 – A double excavation unit formed by the consolidation of k1 and k2 towards the end of the excavation season. It contained several large pits.

5. A9k5 – A "last days of the season" deep probe into the north-central portion of k4, which exposed a small section of the cobblestone (pebble) floor (f80) and

underlying baked brick paving (f84) associated with the service courtyard of the Tupkish palace.

7.2 *1999 Season (MZ12)*

1. A9k3 – A continuation of work begun in MZ10. The higher levels contained installations typical of scattered occupation. These overlaid accumulations containing quantities of reddish mudbrick fragments, typical of the material used in extant portions of the palace walls. (Mudbricks used in later construction were a brownish color similar to that of the local topsoil.) There was no sign of burning, reflecting either that the walls collapsed after a long period of disuse or were knocked down to form a platform for subsequent buildings. These "brickmasses" in turn overlaid accumulations of ash mixed with animal bones and pottery fragments. At the lowest levels were found more of the cobblestone floor discovered in the deep probe k5 of the previous season, and along the north edge, a very large, low, rectangular platform made of shaped stones (f155). There was no evidence of overlaying brickwork, so one must presume that it was not a curtain wall foundation, but rather a place for either workmen or storage.

2. A9k4 – Again this was a continuation of the MZ10 excavations, focusing on leveling portions near the south and east baulks and determining the nature and the extent of the cobble surface found k5 on the last day. As it turned out, this locus contained major portions of the Tupkish palace courtyard. They include the east section of the outside service wing wall, built of red mudbrick laid on a foundation of large, dressed stones several courses high. There was a doorway

(a18) leading to the kitchen (Sector D) whose threshold was paved. There was a stub wall (f1) extending north from the doorway, terminating in a platform built of red and yellow baked bricks (f163). The cobbles formed a path which extended along the southern and eastern edges of the portion of the courtyard that has been excavated. (It is expected that the courtyard extends still further to the north.) A probe adjacent to the brick platform indicated that the baked brick surface found in k5, which was underneath the cobbles, extended throughout the courtyard. The brick floor has been variously described as the floor of an earlier courtyard or as part of a water collection system.

3. A9k6 – Excavation here extended A9 to the west by incorporating portions of what had originally been designated as the southern part of Area 2 and the southeastern part of Area 7 which lay along the northern exterior wall of the service building AK. The top layers had been previously excavated, but the pertinent portion of the Urkesh Global Record is not available for integration into this report. There was a wall fragment at the highest level, while with one exception the accumulations matched those of the adjacent locus, k4. The accumulations bounded by the area just to the north of the west doorway (a17) leading to Sector B of building AK contained a significant number of seal impressions and diagnostic sherds. There were several rough architectural features which had been placed atop the cobble and tamped earth floor of the Tupkish palace which extended to the west from k4. There was no western equivalent to the baked brick and stone platforms that were found in k4 to the

northeast of the east doorway of building AK and no evidence that would have pointed to one ever having been built there.

4. A9k7 – This locus was located to the east of k3. Excavation was undertaken to keep the unit more or less rectangular. (A9k3 had been offset in the prior season, MZ10.) After the topsoil was removed, responsibility was transferred to unit A11 because A9k7 was adjacent to a building excavated in A11 and may have contained additional components of it.

5. A9k8 – This locus was a small square to the west of k3, whose excavation was undertaken to keep A9 more or less rectangular. Only the topsoil and first layer of accumulation were removed before the end of the season. A tannur (oven) and a burial were the only other features excavated.

6. A9k9 – This locus, to the north of k3, was excavated to determine the northern extent of the service courtyard. It was hypothesized that it may have overlain a major wall of the residential and administrative wing of the Tupkish palace. Its surface was about four meters above the projected courtyard floor. Literally on the surface, along the north edge, were portions of two buildings, a north-south path paved with sherds, and a hearth. The next major architectural element, about two meters beneath the surface in the western half of the locus, was the southeast corner of a significant building, constructed using pisé walls (f382) on a foundation of large stones (f152). This building housed two large tannurs (f151, f160), which suggests an industrial use of the structure. Excavation of the western half stopped at this point, but continued on the east where it was clear that

a gulley had cut a major swath in antiquity. A calcareous floor (f169) was found at about one meter lower than the adjacent stone foundation. As excavation proceeded for another two meters, it became apparent that the same red, brick-filled accumulations were being encountered as had been seen in k3. Excavations terminated for the season at this point when no evidence of additional intact palace walls was encountered.

7.3 *2001 Season (MZ14)*

1. A9k10 – Excavation of this locus, the most southerly of those investigated this season and adjacent to unit A2 to the west and south, involved cleaning, clarifying, and documenting in the current data system what had been uncovered in MZ4 as ASk115 and then re-covered with plastic sheeting and previously excavated and screened soil for preservation. Major architectural features included a north-south brick wall (f231), a pebble and sherd floor (f230), a possible tomb (a30), several tannurs, and an east-west retaining wall (f243) along the north baulk.

2. A9k11 – This locus, immediately to the north of k10, was the most complex of those excavated, containing material from several phases and sub-phases. It had been dug in MZ4 as ASk114 and re-covered for preservation. No field notes or data sheets were available for this locus. The earliest features seem to have carried north from the retaining wall (f243) found in k10. They are an east-west brick curtain wall (f228) and associated floors on either side. A tannur under construction was found resting on the north floor. The next phase seems to have

involved filling and covering this area with a brick floor (f295). A pit (a29) was dug into this surface and in turn, the pisé foundation (f225) for a large north-south wall was dug and laid through the pit, also cutting the curtain wall above. The baulks in the northeast corner show additional walls and floor surfaces. The earliest is a horizontal brick surface adjacent to which is a pisé wall (f268) and associated floor surface (f357). (It is important to note that this pisé wall is cut by the large pit (a29) described above.) Next is a wall (f256) built atop the floor surface, which in turn is overlaid with what appears to be a brick floor (f359).

3. A9k21 – This locus was previously excavated and recovered as ASk113, for which relatively good tabular records exist. The most significant feature is a massive north-south brick wall (f205) laid on a pisé foundation (f273). The wall is 3.5m wide and extends northwest into loci that have not been excavated. Other significant features include a portion of a flagstone floor (f204) and a pisé wall (f353) and floor (f354) which may have been built for storage. At the highest level of the north baulk, just under the topsoil, is a horizontal brick surface (f347) that extends to the east and appears to be the western end of a path paved with pebbles and sherds that connects buildings on the western side to buildings on the eastern side of the gulley.

4. A9k31 – This locus, directly north of k21, was excavated in MZ4 as ASk112. Of the ones dug in 1990, available documentation was the most complete, containing both tabular and narrative data as well as sketches. Although the features were surveyed, it was not possible to recover that information. The most significant feature was a large tomb in the southern part. The available parts of the Global

Record do not indicate of what grave goods, if any, were recovered. However, the techniques used in the construction (vertical and horizontal excavation and use of pisé) differ significantly from those used in Khabur tombs which have been excavated in many other parts of the tell. Other features include the eastern edge of the large pisé-founded brick wall (f205) discovered in k21, an accompanying cross-wall (f382) running east-west, and a small additional wall stub (f320) built atop the large north-south wall (f205). Since the earlier documentation on the tomb and wall excavations was ample, we only cleaned, re-numbered, and re-measured the extant features. Because what remained of the tomb was fragile and complex, we did not clean it.

5. A9k41 – This locus, to the north of k31, was excavated as ASk111 in MZ4. The sparse documentation available lists accumulations and walls including two that run east-west and which are possibly linked to the major north-south wall found in k21 and k31. Several additional wall fragments and a floor surface were found in the process of cleaning in 2001. The most important information is contained in the section of the north baulk, which indicates two significant building phases separated by accumulations which suggest scattered occupation between them.

6. A9k51/52 – These loci, to the north of k41, were excavated in MZ4 as k110, for which no documentation was available for review. Two loci were required because, on the higher part of the tell, the AS trench was considerably offset from the current palace-oriented grid system. (The grid system was re-aligned to the orientation of the considerable number of palace walls to facilitate measurements

and drafting.) These squares were only cleaned to reveal the tops of previously excavated architectural features, which lay just under the surface. There was a rough floor (f324) and repaired wall segment (f341) which reflected use after this part of the tell was abandoned. However the major features were the walls of two houses (f322, f339) constructed back-to-back in k52, connected by a flat surface paved in mud (f321) to a wall stub (f323) in k51 to the west.

7. A9k22 – This locus was a new excavation and one in a series along an east-west line in a trench dug to test whether the east and west settlements were linked by buildings in the middle of a modern gulley between the two. (The components of this trench, A9k22-k25 and A9k14-k15, were minimally excavated just deep enough to test for the presence of substantial archaeological elements which could be associated with a particular stratum.) Just under the surface there was a brick layer (f197) in the northwest corner and a linked stone and sherd layer (f196) in the northeast corner. In the southern part of the square were two distinct accumulations which ran east-west through the locus; to the north was a hard surface (f198), while a soft one (f199) lay to the south. At a somewhat lower level, a single course of bricks (f296), laid east-west, was found amid several soft accumulations in the southeast corner. A single line of bricks laid north-south (f298) was in the northwest corner surrounded by a hard accumulation (f294). In section in the north baulk, this surface appears to mound upward towards something in the adjacent locus to the east, k23.

8. A9k23 – This locus was excavated for the first time this season. A layer of stones and sherds (f278) was at an elevation equal to the same kind of layer to the west

in k23 and the brick surfaces in k22 and k21 further to the west. Under the stone layer was a portion of a north-south brick wall (f288) that sat in a hard layer of material (f276) that appeared in section in the north baulk to resemble a tamped earth sloping water channel that may have diverted rain runoff to a north-south gulley which, in the later strata containing Khabur sherds, appeared to separate buildings to the west (A7) from buildings in the east (A11).

9. A9k24 – This locus was another new excavation and was dug considerably deeper than adjacent loci to the east and west, k23 and k25, because the first layers were accumulations of the gulley which lay below the modern surface. There were stones near the surface (f297) in the middle of the northern third of the locus which may have been a part of an east-west path, and a jar burial (i139) of an adolescent girl, as determined by initial dental analysis and enclosed grave goods. Below these were additional accumulations, some of which contained large numbers of sherds, and into which were dug several pits. At the lowest level excavated were found three substantial pisé walls, (f325, f348, and f349) seen in section in the north, east and south baulks, respectively. Associated with these was a pebble floor (f336) and a low platform (f345) in front of which was a large, imbedded stone quern (i153).

10. A9k25 – This locus was another new excavation. Its principal features lay just below the surface and included a layer of stones and sherds (f318) in the northern third of the locus, the top of a large mudbrick wall in the southeast quarter (f328), and a possible floor surface in the northeast corner (f326).

11. A9k14 – This locus, just to the south of k24, was toward the east end of a string of new squares. (A9k9, excavated in MZ12, was between k11 and this locus.) There was a stone and sherd layer (f242) just below the surface in the northeast corner and a mudbrick wall fragment (f244) seen in section in the southeast corner. The major feature was a large mudbrick wall (f255) below the wall fragment, which occupied the southeast quarter of the locus. A large flat grinding stone was found along the east baulk at the same elevation as the platform and quern and may have formed a part of that installation.

12. A9k15 – This locus, just to the south of k25, was where one of the few cylinder seals (i138) that has been found at the site was discovered, just below the surface in a mélange of objects that included baked brick and an impression from another seal. Not far below that, in the southeast corner was the top of a major mudbrick wall (f309).

8. ANALYSIS OF PERIODIZATION

After fully describing the lowest level excavated to date, selected features that have the potential to identify important phases or transitions will be investigated, moving forward in time and higher in elevation. The contribution of each and every feature to the process of deposition cannot be accomplished in a work of this limited scope. Such an effort requires the expertise of specialists to analyze ceramics, glyptics, architecture and a wide variety of miscellaneous artifacts. This should indicate where additional work should be focused.

8.1 *Tupkish Palace*

A series of ongoing excavations have exposed some of the rooms and floors of a palace positively associated, through writings on seal impressions found in storerooms and other working areas, with the Hurrian king Tupkish. Excavations in A9 in MZ10 and MZ12 exposed a large unroofed working space (the Sector F service courtyard) that was connected to the main palace by two doorways to the kitchen (Sector D) and storerooms (Sector B) in the service wing (AK) (Figure 5).

The courtyard, only part of which has been excavated, consists of a large open area with various working structures around the periphery. The floor has at least two distinct sections. The first is pebble paving about one meter wide along the southern palace wall and the two eastern platforms. The second is tamped earth to the west and north of the pebble paving. The two raised platforms along the eastern edge are not constructed of the same material. The southernmost is built of yellow and red baked bricks, while the northernmost is built of large stones, partially shaped to make straight edges.

No known palace has an identical courtyard, although several share some of the same characteristics. For example, Dalley (1984: 14-15) discusses the functional elements of the palace at Mari as disclosed by excavations and analysis of an extensive palace archive. There the palace was multi-functional, serving as royal residence, center of government, as well as a marketplace, which facilitated long range trade and local commerce. It also functioned as a caravanserai and a production center for non-polluting goods, such as textiles.

At Tell Brak during the Akkadian period, cobbled paths were a part of formal Akkadian buildings (Oates, et al. 2001: 21). Paved areas were used as working spaces in a later Mitanni palace (Oates, et al. 1997: 4-10).

The baked brick threshold and the brick floor in the eastern doorway between the Sector D kitchen and the Sector F courtyard positively link the two at a single point in time. The most logical function of the cobbles was to protect the floor surface from being damaged by the hooves of pack animals that carried goods of various kinds to and from the palace when it was functioning as such. No artifacts were found resting on the floor surface of the courtyard, indicating that it was regularly swept clean while it was associated with the Tupkish palace.

8.2 *Post-Palace Occupation*

The following shows that the service courtyard was immediately reused during the next phase of occupation, although changes were made. First, a north-south retaining wall built of large stones was roughly laid on the cobbles just to the north of the west doorway. A larger single stone sat facing the doorway several meters to the north. The area was not swept and accumulations began to form over the courtyard surface. However, the artifacts within the accumulations continued to reflect the use of ceramics associated with the palace, most characteristically, conical cups. These cups were found in significant quantities in the first layers which overlaid the Tupkish courtyard, both directly to the north of the west doorway and in the portion of the courtyard between the doorways. Also, an ashy layer containing numerous animal bones and sherds overlaid the large stone platform to the north of the east doorway.

The west doorway was not excavated. The accumulations between the walls alternate with brick thresholds. This indicates that the doorway remained in use for a long time, during which it was periodically resurfaced to match the rise in internal accumulations in Sector B to the south that accompanied the accumulating soil deposits in the courtyard.

8.2.1 **Female Figurine**

A small lead figurine depicting a nude woman was found in the accumulations to the north of the west doorway (Figure 6). It is typical of a style and composition which is associated with Cappadocia, a metal mining center in Anatolia lying to the north of the Mardin Pass. Exemplars have been found in a number of places, including Tell Brak. The Brak figurine was found on the surface, in an area of that tell associated with the early part of the second millennium (Oates, et al. 1997: 141). These figurines may be associated with the continuing long range trade in metals to satisfy the need for prestige items in southern Mesopotamia, which had not undergone the dramatic collapse experienced in the north at the end of the Akkadian period.

There is no evidence of a break in occupation in this part of Tell Mozan during this time period, such as the one observed at Tell Leilan and hypothesized to have been a regional phenomenon resulting from a combination of volcanic activity and the onset of long-term drought. This part of the Mozan settlement was definitely not abandoned, although the change in use may have been occasioned by the decrease in trade associated with regional environmental stress.

Figure 6

Lead Figurine: Head and Torso of a Young Woman (Tell Mozan Photo by Guiseppi Gallaci)

8.3 *Accumulations Atop The Ruins*

The next major architectural period came after this re-use of the palace structure. Its courtyard filled with debris from successive scattered occupations. The only artifacts of interest in this material were two carved stone seals. The first, found in 1997, was a seal made of smooth, hard stone containing a scene consisting of a group of stylized leaping wild goats or antelope (Figure 7). Impressions, formed by rolling the seal on wet clay, were used to indicate ownership of such objects as trade goods and foodstuffs stored in jars. The second, found in 1999, was a seal cut in a common geometric pattern, either made of local stone or faience.

8.3.1 **Prancing Goat Seal**

Seals and other glyptic objects have contained groups of animals since the Uruk period (Oates and Oates 1976: 132-133). The seals of the Jemdet Nasr period, which immediately followed, expanded the use of groups in a variety of contexts. The largest known group of seals from that period, which came from stratified contexts in the Diyala River basin (east of modern Baghdad), was stratigraphically and stylistically analyzed by Frankfort (1955). He sees late Protoliterate (Jemdet Nasr) seals retaining the theme of the temple flock, while being expressed in a cruder and more abbreviated form. Sometimes, even the genus of animals cannot be determined. Although it can be argued that stylistic freedom has resulted in the creation of designs which better capture the essence of animal behavior, at least one example of a seal depicting two goats, found at Khafajah in locus Q42 in the Sin Temple and dated to the later Protoliterate period, has

Figure 7

Rolling from Prancing Goat Seal A9i29
(Tell Mozan photo by James Walker)

the same design elements as the Mozan seal. Thus, at least stylistically, the seal found in k4 can be assigned to the Jemdet Nasr period.

Obviously, the stratum from which it came cannot be associated with this period. However, the most logical explanation for its presence is that it was incorporated in a deposit nearby and was dug up and re-deposited during the process of preparing the foundations for the Ur III buildings which lay above it. If this presumption is correct, then it also provides the first evidence that Tell Mozan was occupied in the Halaf period, through the Jemdet Nasr period, into the Early Dynastic period. However, it is impossible to postulate whether the occupation was continuous based on this scant evidence.

8.4 *Khabur Ware Pottery*

The Khabur Period is marked by a distinctive style of pottery, which features simple shapes upon which simple geometric designs are painted in red, black, orange, or brown. Although the ceramics from A9 have not been analyzed, the appearance of "Khabur Ware" has been annotated in the MZ4(1990) and MZ14(2001) excavation seasons. In 1990 the existence of a "Khabur floor" was noted in locus k113, while in 2001 the first Khabur ceramics were found in locus k11, in pits dug just before the pisé wall, f225, was constructed. A good exemplar was found in one of these pits, sealed by a layer of mudbricks and therefore not contaminated by later activities.

Khabur Ware has been found at a number of northern Mesopotamian sites. Stein has analyzed its origin and distribution in great detail (1984). It was first identified by Mallowan at Tell Chagar Bazar, and has been reported in quantity in stratified second

millennium deposits at Tell al-Rimah near Mosul in Iraq, at Tell Leilan, and at Tell Mozan, among others. The boundaries roughly correspond to the reach of the regional empire of Shamshi Adad. Mallowan reported that the lowest level where this ceramic type first appeared was one in which tablets mentioning Iasmakh Adad (son of Shamshi Adad I and governor of the district that included Chagar Bazar) were in found in trays made from broken Khabur Ware jars. This indicated to Mallowan that some of the Khabur Ware cannot be later than that governor's lifetime (1947: 82).

It is logical to conclude from the distribution of Khabur Ware and from its association with Shamshi Adad at Chagar Bazar that this particular regional pottery style originated and spread as a consequence of his reign. Therefore, the pisé wall (f225) was most probably constructed soon after the time Shamshi Adad formed his empire.

8.5 *Post-Khabur Period*

Two distinctive artifacts were found above the accumulations which can be confidently assigned to the Khabur Period, coeval with the Old Babylonian Period. It is highly likely that they belong to a later period. The first was a carved cylinder seal (Figure 8). The second was the head of a human figurine (Figure 9).

8.5.1 **Cylinder Seal**

Although lacking writing which would identify the name, function, and source of authority of the owner, the iconography of a cylinder seal can nevertheless tell much about the period and place where they lived and worked. For example, scenes showing the owner being presented by one deity to another deity are common in Mesopotamia in

Figure 8

Cylinder Seal A9.128 and clay
impression made from a rolling

(From Tell Mozan Photo
by Guiseppe Gallaci)

Figure 9

Sculptured stone head of male
(Tell Mozan photo by Guiseppi Gallaci)

the late Akkadian and Old Babylonian periods. The scene depicted on this seal is undoubtedly derived from mythology in vogue in the Middle Babylonian period.

The central element is a stylized tree with 16 branches in paired groups of two up the trunk. Two winged figures flank the tree. The one on the right represents either a griffin or a human with the head of a bird, wings, and a lion's tail. The musculature and proportions of the leg and arm suggest clothing. However, the griffin was such an established part of the iconography of the second millennium B.C. that it is more likely that a local stylized version of a griffin is what is represented here. The griffin clutches a large snake in its right front paw. Although separated by the tree, the griffin appears to be in conflict or about to engage in it with another figure.

The figure to the left of the tree is a winged male who wears a short girdled skirt and holds an instrument in his right hand. His hat has either horns – suggesting that he is a deity, or has snakes –suggesting the cobras seen on pharaonic crowns. The instrument he holds appears to be either a flail or a scimitar. By the second millennium in northern Mesopotamia, scimitars were common weapons. One was found near a metal- and glass-workshop in a deposit at Terqa (at the juncture of the Khabur and Euphrates Rivers). Figure 10 shows another well-preserved example. The inscribed, curved sword (now in the New York Metropolitan Museum) belonged to Adad-nerari I, the son of an Assyrian king, and was purportedly found near the town of Mardin (within sight of Tell Mozan), a region mentioned as possibly the northern limit of his conquests, which included the twice-destroyed Mitanni fortress at Tell Brak. This scimitar was dated to the thirteenth century B.C. (Maxwell-Hyslop 2002). Furthermore, cylinder seals from the Mitanni period show rulers and gods engaged in rituals while wielding scimitars. A seal

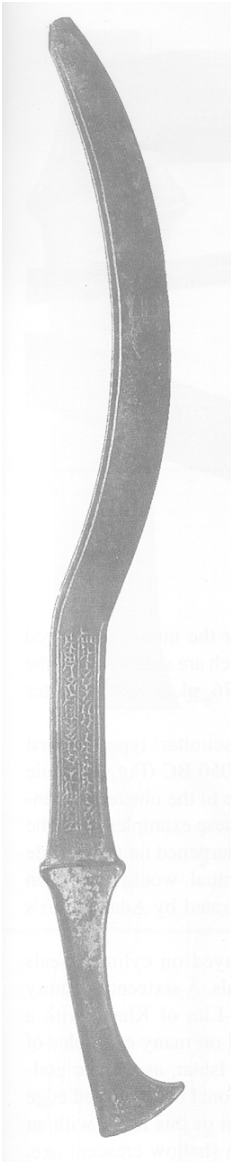


Figure 10

Scimitar of Adad-nerari I
(From Maxwell-Hyslop (2002: Fig 1)

impression found at Nuzi (Mitanni period) shows a male figure holding a scimitar while participating in a ritual before a stylized tree. Frankfort's analysis suggests that the god represented may be Adad, the Weather God, in Babylonian mythology but called Teshub in Hurrian mythology (1965:162-163). Since curved swords were used by warriors and depicted on cylinder seals in northern Mesopotamia during the early and middle second millennium B.C., the better view is that the man-figure on this seal is a god holding a scimitar.

Another human male stands to the right of the griffin. He holds a smaller tree in his right hand. The tree has six leaves arranged in three pairs up the stem. He wears a full-length robe draped off his left shoulder. The robe is long enough to cover his feet and is girdled on the left side, while the right side is pleated. His hat resembles an exaggerated version of the type worn by Gudea of Lagash as depicted in statuary that has been preserved, although it is more likely that the headpiece is a turban. This figure is probably a king or a governor because he is presenting the tree.

Two animal-like figures are stacked to the right of the king, a common practice to fill all the space on a scene. The lower one is a hare. The upper one is probably taken from mythology. It is winged and stands on four legs. It has a tail and its head is partially obscured.

There was a distinct seal iconography associated with Syria and Mitanni during the second millennium B.C. It included the Storm God and winged mythical figures, while regarding the serpent as a frightening figure (Amiet 1980: 160-161, Figure 798)

Porada (1947) analyzed over 1000 stratified impressions made by seals that were rolled on tablets at Nuzi during the second half of the fifteenth century B.C., a time when that city (near Kirkuk in northern Iraq) was ruled by Mitanni kings. A number depict rituals performed by some combination of deities, mythical animals, and royalty before a stylized tree. She presents several possible interpretations. One is that it depicts a ritual event being acted out by men costumed as gods and mythical figures, designed to revive nature (p. 111). Another, attributed specifically to the Mitanni, is that the ritual is to protect the tree from being damaged (p. 113). Because the third figure holds a young tree, the more likely view is that the scene on the Mozan seal depicts a ritual to regenerate nature, which more fully accounts for the anthropomorphic features of the griffin. Although Porada attributes Assyrian roots to this interpretation, the fact that griffins were depicted on seals used at Nuzi by people who wrote in Hurrian during the Mitanni period is further evidence that the Mozan seal was probably also owned by a Mitanni official.

8.5.2 **Figurine Head**

A part of an unfinished stone sculpture, most likely the head of a male that could have been intended as a bust or complete statue, was found in an accumulation overlaying the mud floor separating walls in loci 51 and 52, the highest excavated so far in A9. The face is wider at its base than the top, but there is no suggestion of a heavy beard. The eyebrows are heavy and continuous across the face. The nose and mouth are formed but not prominent. The eye sockets are deep and vacant, suggesting receptacles for eyes of a different material. Its principle identifying characteristic is the rounded, egg-shaped form of the head above the brow. In addition there is a band of material that has been cut away above the eyebrows. Although this form may represent the actual shape of the subject's

head or hairline with a provision for a headband of another material, it is more likely that the elongation represents a hat or crown. A draftsman who depicted the head as part of the Global Record saw a series of vertical lines radiating from the crown to the margin of the band that had been cut away. She also saw a backward slope of the material on the head's right side, while some of the radial lines that begin at the top of the head seem to continue down the back.

There is a category of northern Mesopotamian glyptic prominent in the second millennium B.C. called "Syrian," which incorporated regional stylistic and iconographic ideas into those of empires which politically dominated the region For example, a statue of the Syrian god Djabbul, dated to the seventeenth century B.C., was found between Aleppo and Mozan. It features sunken eyes, prominent eyebrows, a narrow face, and a very elongated headdress, defined by a series of lines that may suggest horns which seem to be tilted back on his head (Amiet 1980: 160-161, figure 489).

A more appropriate model may be King Idrimi of Alalakh (a city in what was western Syria and that in modern times has been incorporated into southern Turkey), a Mitanni king who ruled the western part of that empire in the fifteenth century B.C. His statue lacks prominent eyebrows and sunken eye sockets, but wears a rounded hat which, although somewhat higher than a natural head crown, rests more forward on the head (Collon 1995: 108-110, Figure 90).

Another intriguing alternative is that it may be the head of a Hittite girl. (The Hittite Empire, based in the central part of what now is modern Turkey, dominated northern Mesopotamia following the Mitanni period.) Collon (1995: 105, Figure 85) shows an

example of such a figurine, which has a distinctive hairstyle, shaped like a bowl in front and pulled to a long plait which falls along her back.

On balance, the better interpretation is that the figurine head is Mitanni in style and most likely was carved during the time when that empire dominated northern Mesopotamia from Nuzi to Alalakh. However, there is no guarantee that it was originally deposited in this stratum. The head was found in the process of cleaning away a surface accumulation which covered AS loci that had been excavated in 1990. Therefore it is possible that it was either associated with the architecture in k51 and k52 or was washed down from strata above it, which reportedly had "Nuzi" sherds in the accumulations. The conservative conclusion is that the architecture in k51 and in k52 marks the transition point into the Mitanni period, which either started at Mozan when the buildings were constructed or soon thereafter.

9. STRATIGRAPHIC ASSIGNMENTS

9.1 *Theory and Reality*

If a Harris Matrix is maintained continuously from the beginning to the end of an excavation, it is a straightforward task to incorporate the time markers (including ceramics analysis and artifact analysis) into it in order to transition the matrix from one that is emplacement-based to deposition-base.

Here, it was not possible to do this within the scope of thesis work. After constructing a Harris Matrix for each locus for each excavation season, one must coordinate over time and space to combine the individual matrices. For example, in

MZ10, the first season for which a set of records for adjacent loci were consistently maintained, an overall matrix was synthesized (Figure 11). From this result, the strata can be identified and named. As elevations and pottery analysis become available in the next year it will be possible to join it to matrices for loci adjacent horizontally and vertically. After this, it will be possible to standardize the loci, first within the excavation unit, then throughout the site.

As a second example, a joint Harris Matrix was formed from excavations of the same locus (k3) that were carried out in two successive seasons (MZ10 and MZ12) (Figure 12). As before, the strata were identified, but more data are needed to fit it into an overall matrix. However, since this locus now spans a large vertical distance one can use this matrix to hypothesize and test whether the tell was continuously occupied over an extended period by analyzing the contents of each stratum, whose relationship to each other is clearly illustrated.

As a third example, a joint Harris Matrix was formed from the excavations of two very large loci (k4, k6), which encompassed the material excavated from atop the east-west extent of the Tupkish Palace courtyard (Figure 13). Here, since the loci span a large horizontal distance, one can use this matrix to hypothesize and test what occurred in the period following the event that caused the Tupkish palace to cease functioning in its original capacity.

9.2 *Was the Service Courtyard Abandoned?*

Another way to test whether or not the occupation of the courtyard continued beyond the time that the use of the service wing changed is to examine the distribution of

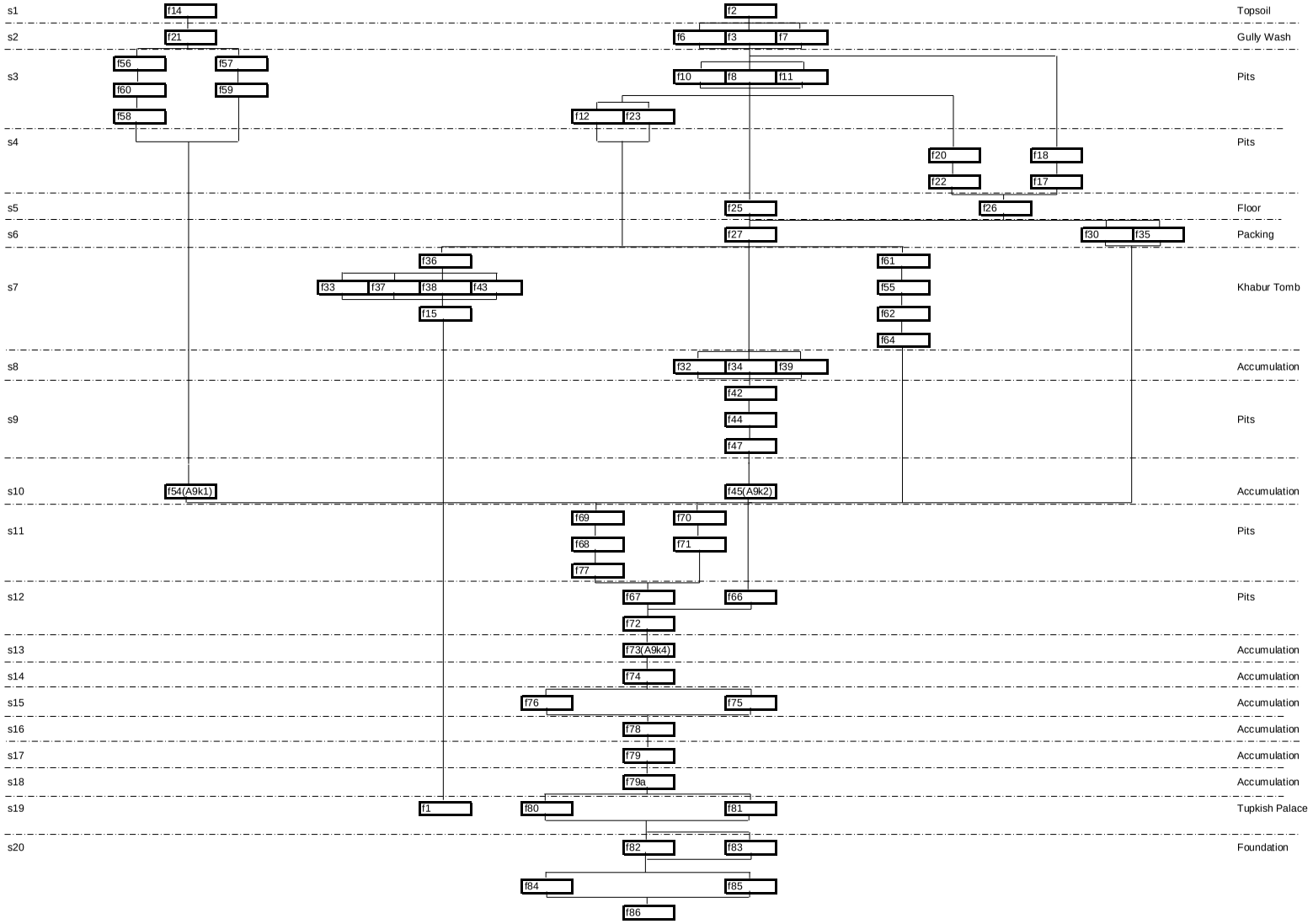


Figure 11
Stratigraphic Analysis of A9k2, k4, k5 for Season MZ10 (1997)

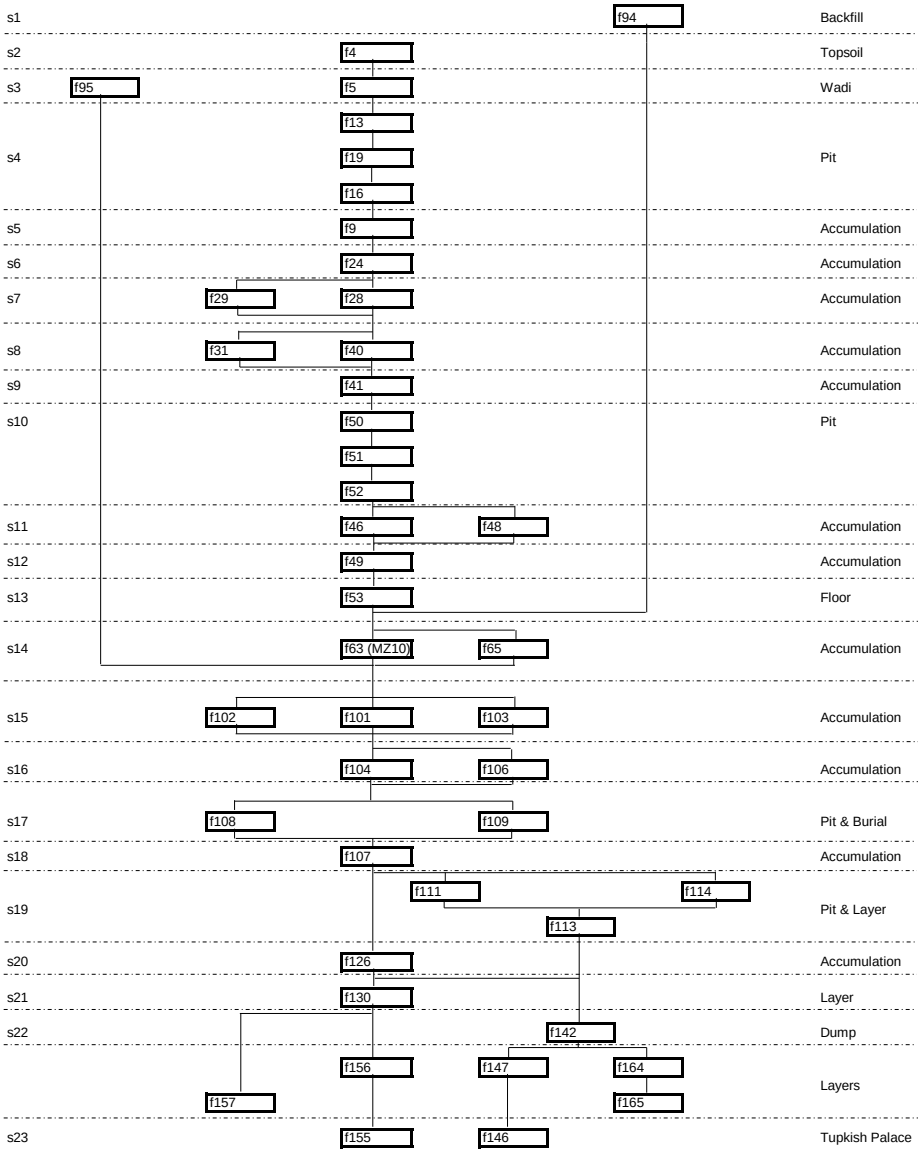


Figure 12

Stratigraphic Analysis of A9k3 for seasons MZ10 (1997) and MZ12 (1999)

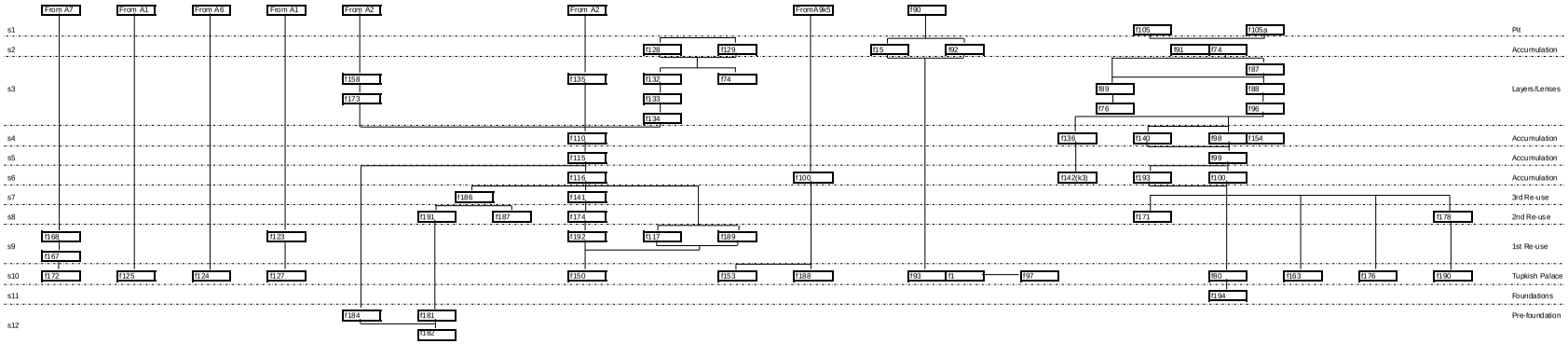


Figure 13

Stratigraphic Analysis of A9k4 and k6 for MZ12 (1999) (Tupkish Palace courtyard)

ceramics. Although generally the pottery for A9 has not been analyzed, the sherds from selected accumulations, including ones in the courtyard above the pebble surface, were counted and cataloged. Table III shows the counts from features 98 and 100, which overlaid each other and the Phase 2 (Tupkish) courtyard surface. (Feature 99 was a separate accumulation wedged between parts of f98 and f100 and therefore was not included in this analysis.)

Climatic data recorded at Tell Mozan throughout 2002 and 2003 for a separate study of wall preservation indicates that, although the region is dry and hot in the summer, it is temperate during the rest of the year. In winter there are periods of significant rain, snow and freezing temperatures. If the courtyard had been abandoned, we would expect to see a high concentration of sherds associated with use at abandonment in the bottom layer, with significantly fewer above. For example, under conditions that include freezing and thawing (similar to Tell Mozan), Rowlett and Robbins (1982) predict that seven percent of the sherds deposited in a given layer will migrate to higher levels and three percent will migrate to lower levels, under a variety of environmental effects including frost and earthworms.

Looking at the data for the distribution of conical cups, previously identified as a horizon marker for the Akkadian empire in the vicinity of Tell Mozan, we see that 106 of these sherds were found in the lower layer (f100) and 71 in the layer directly above in most parts of the courtyard (f98). If the distribution had been determined solely by migration after a single deposition of conical cup sherds in f100, we would expect f98 to have contained about 10 conical cup sherds. As the actual count of cup sherds in f98 was 71, it means that these cups must have been deposited over the time it took for the

Conical Cup Type (cc-)	Feature	f98 Count	f100 Count	f110 Count
cc-1		1	7	4
cc-2		14	11	19
cc-3		7	29	6
cc-4			7	1
cc-5		22	22	22
cc-fb		9	12	6
cc-cv				3
cc-sc		18	17	9
cc-scv			1	5
	Totals	71	106	75

Table III

Counts of conical cup sherds in selected Tell Mozan features of A9 loci k4 and k6 for season MZ12 (1999)

accumulations to build. To the extent that such a small sample in a limited area can be interpreted to represent a site-wide phenomenon, one can conclude that activity continued for a considerable period of time after the courtyard no longer functioned as part of the palace.

When combined with evidence that the doorway between the covered service wing (AK) and the open courtyard continued to function, we can conclude that this part of Mozan was not abandoned after Phase 2, but rather continued to be used until the time that the walls of the palace which stood to the north and east were leveled in preparation for the construction of a new phase of the settlement, which included the house in k9 having the stone foundations, the tannurs, and the pisé walls.

9.3 *Link to Other Excavation Units*

In MZ14 (2001), squares previously excavated in MZ4 (1990) were re-excavated and re-aligned. Because elevations were carefully recorded in later excavations, a Harris Matrix formed by joining matrices from k10 (MZ10/MZ14) with k9 (MZ12) horizontally and vertically allows a link to be established between AS, A9 and A11 excavations (Figure 14). Because the k10 floor, the k9 pisé wall and a horizontal brick pavement in A11 can be linked by nearly identical elevations (8720, which is equivalent to 487.20 meters above sea level), a reference point for all loci in A9 can be established, which in turn will allow us to hypothesize a complete stratigraphic sequence for this part of the tell, one of the goals of this thesis.

This link exposes several other stratigraphic points. First, the calcareous floor (f169) may be the first architectural feature constructed after the palace walls were leveled. If

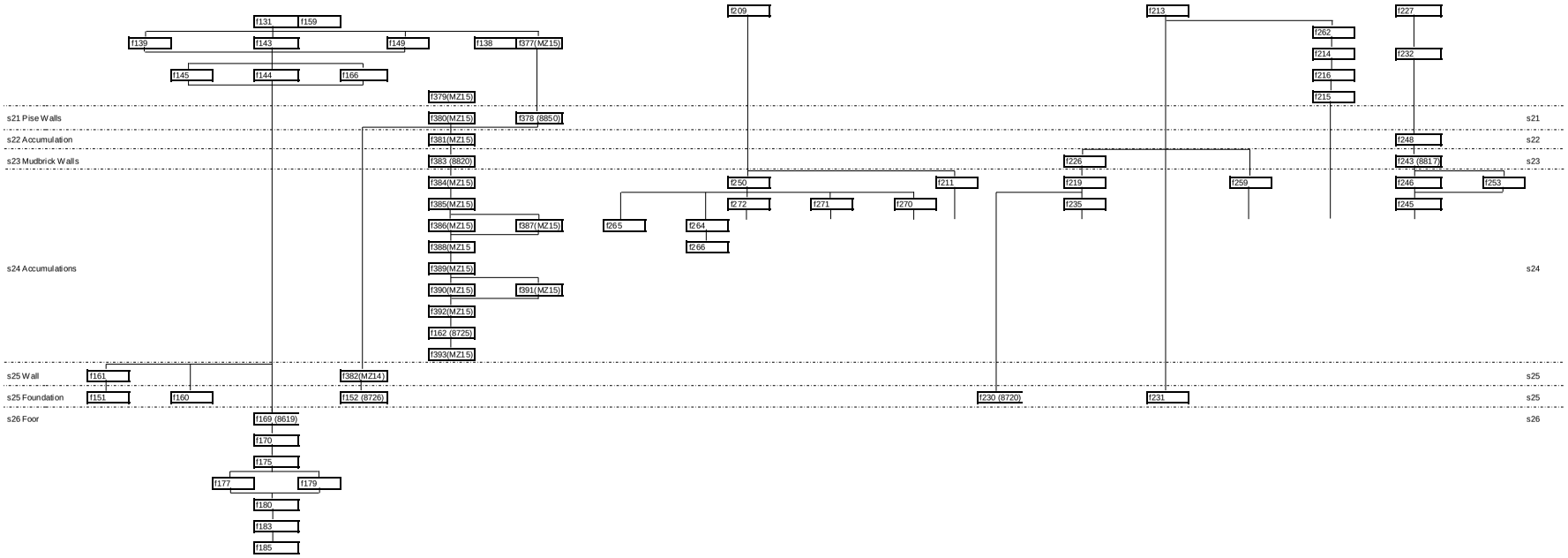


Figure 14

Stratigraphic Analysis of A9k9, k10 for MZ14 (2001)

loci k9 and k10 excavations are resumed, we may expect to find walls associated with it. Second, although it was not obvious at the time, there were several layers of accumulation within stratum 24, which probably indicate that the associated buildings were used for a considerable period of time. This, in turn, again points to continuous occupation of the tell by a sizable number of people from the Akkadian period (Tupkish palace) to the Middle Babylonian (Mitanni) period.

9.4 *A9 Stratigraphic Hypothesis*

Now that the efficacy of certain marker artifacts has been evaluated and the excavated loci linked through Harris Matrices, it becomes possible to assign specific strata in the Mozan system to the levels encountered in the excavation. This is important because a properly developed stratigraphic sequence can be a key tool for linking emplacement and deposition. Buccellati has, over several iterations, developed standardized stratigraphic and phase sequences for the service (AK) and formal (AF) wings of the palace (Table II). However, in light of the large number of unique elements found in A9 it is prudent to develop an independent sequence rather than force the observations from the excavations in A9 to agree with the standard.

Specifically, from top to bottom, a separate stratum will be assigned for each set of architectural elements that have been found in the part of Tell Mozan encompassing A9. Figure 15 is a schematic drawing of significant architectural features discovered over the four excavation seasons. The following are the observed strata derived from the excavations conducted from 1990 through 2001:

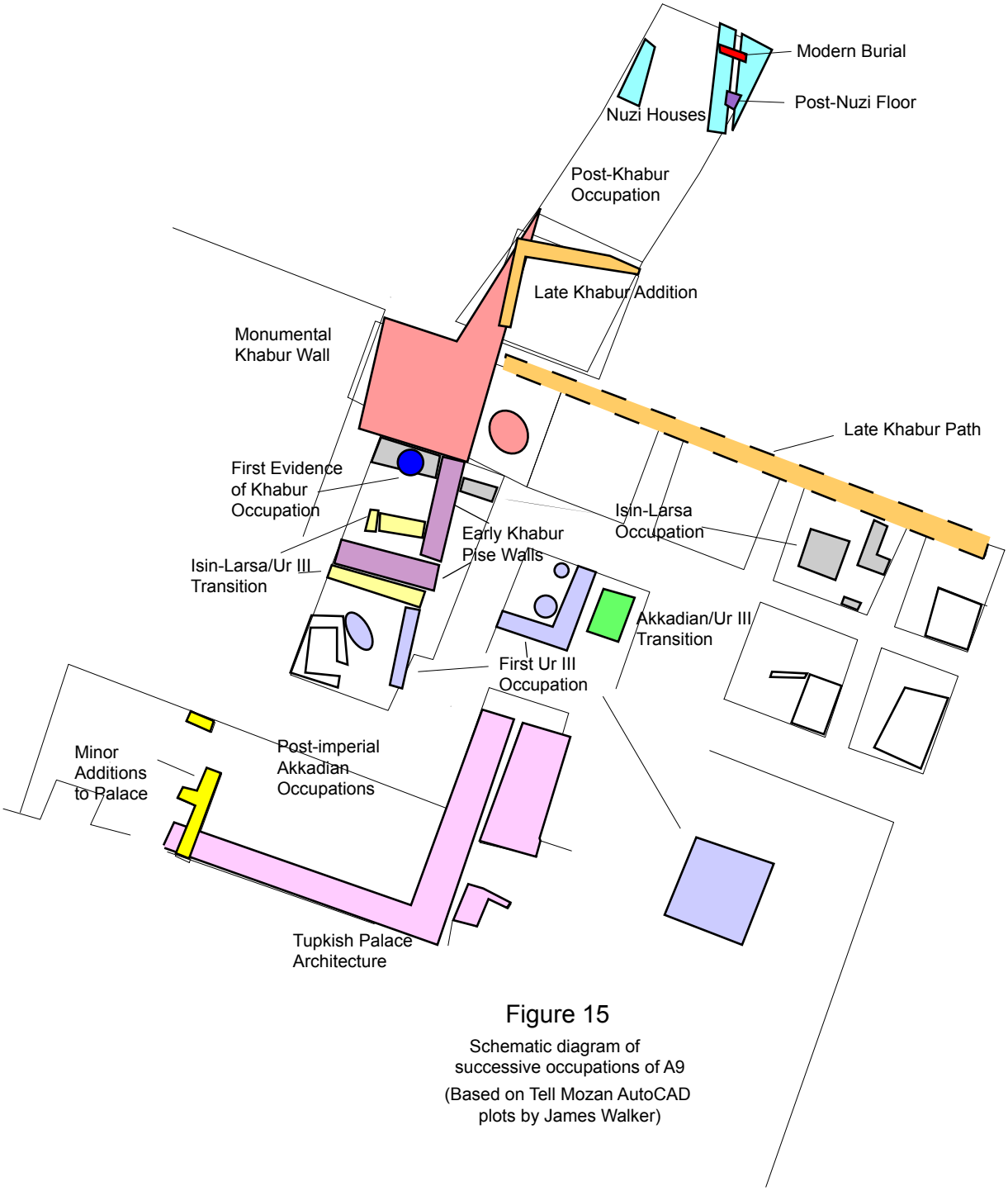


Figure 15

Schematic diagram of successive occupations of A9

(Based on Tell Mozan AutoCAD plots by James Walker)

1. Surface – includes modern berms to manage water flow during winter rains and backfill used to protect excavated architecture between seasons.

2. Topsoil – soil formed by the interaction of root systems and decayed plant matter with soil below.

3. Sub-surface accumulation – loess, which was deposited over architectural features by wind after abandonment.

4. Gully wash – soil and other materials removed from original deposits and transported to lower elevations by water runoff.

5. Burials – graves dug into lower levels after organized occupation ceased. Most were probably dug by nomads.

6. Rebuilding and reuse of k51/k52 houses after their abandonment by Mitanni.

7. Living accumulations within k51/k52 houses by Mitanni builders.

8. Structural buildup of k51/k52 Mitanni houses.

9. Scattered occupation of k41/k42 houses.

10. Occupation of post-Khabur houses in k41/42.

11. Structural buildup of post-Khabur houses in k41/42.

12. Reuse of Khabur palace and walls by later Khabur groups.

13. Rebuilding of Khabur palace and walls by later Khabur groups.

14. Occupation of Khabur monumental buildings and houses.

15. Structural buildup of Khabur monumental buildings.

16. Occupation of second Khabur buildings.

17. Structural buildup of second Khabur houses (pisé walls).

18. First evidence of Khabur occupation.

19. Construction of first Khabur houses.

20. Occupation of k11 house with pisé wall and k24 house.

21. Structural buildup of k11 house with pisé wall and k24 house.

22. Occupation of k10/k11 house with brick curtain wall.

23. Structural buildup of k10/k11 house with brick curtain wall.

24. Occupation of k9 house, k10 brick wall and A11 brick platform, which judging by the number of living accumulations contained by the pisé wall, lasted a long time.

25. Structural buildup of k9 house, k10 brick wall and A11 brick platform.

26. Leveling of palace wall tops.

27. Multiple occupations and uses of area contained by palace walls. Technically, each should be assigned a separate stratum, but without further analysis nothing specific is known about their function.

28. Occupation of reconstructed palace.

29. Minor reconstruction which respects palace walls and floors.

30. Occupation of palace by Tupkish.

31. Structural buildup of palace walls and floors.

32. Substructure of palace floors.

33. Occupation at time of "prancing goat" seal.

10. CONCLUSIONS

The stratigraphic and historical analysis performed as a part of this work has illustrated that the occupants of Tell Mozan were full participants in the regional development of northern Mesopotamia from the Akkadian Period through the Mitanni Period, a span of about 800 years. In fact, the seal depicting prancing goats may be evidence that a substantial settlement was located here for almost two millennia.

The functions of the settlements at Tell Mozan changed through time. During the Akkadian period, it functioned as the capital of a Hurrian kingdom, Urkesh, confirmed in A9 by a paved courtyard and an exterior wall to a service building. As the Akkadian empire collapsed significant activity continued here (unlike other cities in the region such as Tell Leilan which ceased to function), perhaps in support of a trade route through the Mardin Pass from resource-rich Anatolia to the Ur III cities in southern Mesopotamia. This is confirmed by the continued use of the service

building, the continual buildup of living accumulations in the courtyard and the Cappadocian figurine.

After a time, the city regained significant regional importance, confirmed by the substantial construction activity on the east, central and western sides of the hill subsumed by A9. It would appear as if the entire surface was leveled to prepare for this activity. With no signs of pause, over a period of several hundred years, a number of houses were built in successive layers, one atop the other. At some time during this process, a distinctive pottery style, Khabur, came into use. One possibility is that it was introduced by the regionally powerful king Shamshi Adad, whose capital city was Shubat Enlil, at nearby Tell Leilan.

Relatively soon after that, letters from Zimri-Lim, head of a regional state whose capital city was at Mari near the junction of the Khabur and Euphrates Rivers, address problems between his vassal king who resided at Urkesh and the residents and council of Hurrians who apparently had resided there for a long time. The very large wall in locus k21 and k31 may be part of a royal building to house the vassal.

Historically, we know that Hammurabi defeated Zimri-Lim, but neglected the region afterwards. This may explain why the next strata contain buildings that are less well constructed. Eventually the Mitanni became the regional power and the houses in k52 and the tree ceremony cylinder seal indicate that although perhaps diminished in size, the Hurrian settlement here had a significant function, which eventually diminished to the point where the tell was for all intents and purposes abandoned.

10.1 *Comparison of Strata Sequences*

When the A9 and published strata assignments are compared, it is apparent that the richness and continuity of the activity represented in the stratigraphic record of the A9 work is not fully reflected in the published Phase and Strata data for the palace excavation. Table IV is a side-by-side listing of the two sets of stratigraphic assignments. The following are the major discrepancies:

1. The standard does not reflect any of the Mitanni settlement data reflected in the A9 excavation data.

2. The standard does not reflect the existence of a fourth phase of Khabur occupation, one that reused the buildings of the maximally expanded third phase.

3. A9 had more substantial building and occupational activity in the Isin-Larsa and Ur III periods than is reflected in the standard.

4. When the pottery from the 1997 and 1999 seasons is analyzed, the large number of distinct accumulations which overlay the abandoned courtyard should clarify the function of Tell Mozan in the Post-Akkadian Imperial Period.

5. The agreement in elevation among sets of houses excavated in different parts of the tell indicate that a wider comparison along these lines would contribute to the overall understanding of the function of the settlement during various periods.

A9 Stratum Assignments

Stratum	Description	Loci	Periodization
1	Surface		Modern
2	Topsoil		Modern
3	Sub-surface accumulation		Modern
4	Gully wash		Modern
5	Burials	52,21	Modern
6	Post-Mitanni occupation	52	Unknown
7	Mitanni occupation	51,52,15,31(tomb)	Mitanni
8	Mitanni construction	51,52	Mitanni
9	Scattered occupation	41(N baulk)	Unknown
10	Occupation of post-Khabur buildings	41	Unknown
11	Post-Kabur construction	41	Unknown
12	Last Khabur occuation	31	Khabur
13	Rebuild of Khabur monumental building	31	Khabur
14	Occupation of Khabur monumental building	21,31	Khabur
15	Structural buildup of Khabur monumental building	21,31	Khabur
16	Occupation of second Khabur buildings	11	Khabur
17	Structural buildup of second Khabur buildings	11	Khabur
18	First Khabur occupation	11(pit)	Khabur
19	First Khabur structural buildup (no direct evidence)		Khabur
20	Occupation of "pise" houses	11,24	Unknown
21	Structural buildup of "pise" houses	11,24	Unknown
22	Occupation of k10/k11 houses	10,11	Unknown
23	Structural buildup of k10/k11 houses	10,11	Unknown
24	Occupation of k9/k10 houses (multiple accumulations)	9,10	Unknown
25	Structural buildup of k9/k10 houses	9,10	Unknown
26	Leveling of Tupkish palace wall-tops (k9f169 floor?)	9,3	Unknown
27	Series of occupational accumulations	1,2,3,4,6	Akkadian
28	Occupation of post-Tupkish palace	6	Akkadian
29	Modification of Tupkish palace	6	Akkadian
30	Occupation of Tupkish palace	3,4,6	Akkadian
31	Structural buildup of Tupkish palace	4,6	Akkadian
32	Substructure of palace floors	5	Akkadian
33	Prancing Goat Seal	4	Jemdet Nasr

Mozan Reference Strata for Area AA

Stratum	Description	Phase	Periodization
1	Surface Wash	6	Modern
2	Topsoil	6	Modern
3	Disturbed upper layer	6	Modern
4	Gully wash	6	Modern
5	Modern burials	6	Modern
6	Brick decomposition	6	Ancient
7	Houses, graves	5c	Khabur/Old Babylonian
7	Houses, graves	5c	Khabur
8	Houses, graves	5b	Khabur/Old Babylonian
8	Houses, graves	5b	Khabur/Old Babylonian
9	Houses, graves	5a	Khabur/Old Babylonian
			Khabur/Old Babylonian
10	Houses	4b	Isin-Larsa
10	Houses	4b	Isin-Larsa
11	Burials	4b	Isin-Laras
12	Houses	4a	Ur III
12	Houses	4a	Ur III
13	Burials	4a	Ur III
14,15,16,17	Re-use of palace dependency	3b	Post-imperial Akkadian
18	First re-use of palace	3a	Late imperial Akkadian
18	Modification of palace	3a	Late imperial Akkadian
19	First occupation of palace	2	Mid-imperial Akkadian
19	Construction of palace	2	Mid-imperial Akkadian
19		2	Mid-imperial Akkadian
20	Underground structure	1	Early Imperial Akkadian
21	Pre-palace platform	1	Early imperial Akkadian

Table IV

Comparison of Area 9 Strata and Published
Tell Mozan Standard Stratigraphic Assignments

11. RECOMMENDATIONS

The following recommendations follow from these conclusions:

1. The missing records must be retrieved from isolated storage and entered into the global record to develop the complete depositional sequence for material excavated in 1990 and 1997.

2. The director of the Tell Mozan excavations should reconcile the differences between the A9 and standard stratigraphic analyses. Each feature in A9 can then be assigned a stratum based on the revised standard, a procedure that will be greatly facilitated by the Harris Matrices developed here.

3. The pottery should be processed as soon as possible to aid in the assignment of phases and periods to the stratum assigned.

4. Future excavations in A9 should favor more horizontal exposure. It is very difficult to reconstruct what is taking place over an extended period of time when data reflect activity in a small, vertically focused trench exploration.

5. As soon as practicable, samples of pisé should be chemically analyzed to test for the presence of ash, which may have been used to strengthen building walls.

Appendix 1

Exemplar of field inputs to the Tell Mozan Global Record

F-1-F-L706 **F1. FEATURE LOG** MZ16(2003-N) Volume____ f-log, page_____

.rd .ri	f	k	df	el		P1	wm	co	c#	hd	tx
				@top	@btm						

Required entries in the feature log include the entry date and person (rd, ri), the feature number in consecutive order (f), the locus number containing the feature (k), a description of the feature including a designated code (df), the top and bottom elevations of the feature (el), the date the feature was removed (P1), the material from which the feature is made (wm), the Munsell color ID (co, c#), the hardness as measured by penetrometer (hd), and the texture (tx). In addition there is a narrative description required as well as the depositional verbs relating it to all other features it touches.

F-5-Q-L606 **F5. Q LOG** MZ16(2003-N) Volume_____ q-log, page_____

.rd .ri	q	df cmpnt s	f	Horizontal definition				Vertical definition			cms down	
				k	Corner relay/	cms ENWS	cms ENWS	start elevation				
					wk, wf (whole locus, feature			mrkr/el	differ	hi		Com- ments

Required entries in the log for q-lots include the entry date and person (rd,ri), the lot number in consecutive order (q), the components, including pottery, bones and objects (df), the feature containing the lot (f), the locus containing the lot (k), the horizontal location of the lot [usually provided by an accurate measure of the corner and the directions away from that point] (Horizontal definition), the vertical location of the lot [usually provided by the same accurate measure as the horizontal location] (Vertical definition), and the excavator's remarks about such things as tentative identification of the pottery types or quantities (comments)

Appendix 1.1
Explanation of Tell Mozan Feature and Q Logs

F-4-I-L606 **F4. ITEM LOG** MZ16(2003-N) Volume____ i-log, page_____

.rd .ri	i	f	k	q	df	ht	lg	w1	w2	wm	sh	co	notes

Required field entries in the item log include the recording date and person (rd,ri), the sequential item number (i), the feature (f), the locus (k) and the q-lot (q) containing the item, the definitiontial code from the standard list (df), the height (ht), length (lg) and width (w1) in cm [alternatively the height (ht) and the diameter (w2) for round objects], the material (wm), the shape (sh), the color (co) and comments. [The purpose of the last 8 entries is to provide field data that will aid in later positive identification of the object, which is more completely measured and categorized in the laboratory.]

F-6-R-J606 **F6. Relay LOG** MZ16(2003-N) Volume____ r-log, page_____

Note: Standing on o1 and looking at o2, point being measured (relay) must be to your right

rd ri	constituent		relay			mm method of measure-ment t= taped k= known	Either o1 orig of 1 OR Ec North Coord	T1 Tie 1 (dis-tance) OR Ec East coord	Either o2 orig of 2 OR Calcu-lated Eleva-tion	T2 Tie2 (dis-tance)	oe Where Elev measur ed OR StadRo d elev	Diff erent -ial Abo -ve oe if need -ed	Te Tie elev
	cl Con-stit-uent Label	df Def-ini-tion	r relay	rf relay def	rl relay location								

Required field entries include the date and the recorder's initials, what is being located (cl), its standard definition (df), the consecutive number of the relay (r), what aspect of the thing is being measured (rf), the location on the thing where the relay was taken (rl), method of measurement (mm), the first of two reference points used in triangulation (o1), the distance to it (T1), the second reference point (o2), the distance to it T2, the reference point for elevation measurement (oe), the height above the reference point, and the height of the measurer's eye above the object (Te).

.bk A09
.fl Ny30jw.j
.fd daily log entries
.ei jw
.ed Ny30
.rd Ny30
.ri jw

f

402	11	ts	8522 0 0 8499 0 0	Ny30		light brown		10YR6/3	2.0	granular	
403	15	w	8356 0 0		stone	tan					
404	11	ac	8499 0 0 8450 0 0	Ny30		dark brown		10YR4/3	1.5	sandy	
405	11	w	8499 0 0 8400 0 0		mudbrick	pink	7.5R7/4	4.0			

f 402
df ts
ds relatively clean, thin layer under topsoil. Had a few sherds of various periods, including Khabur and Nuzi.
tc co f404
tc co f405

f 404
df ac
ds laminations consisting of alternating layers of sand and silt. May have been residue of annual rainy season runoff contained by wall f405, in which the solids settled and the water evaporated time after time.
tc ab f405

f 406
df w
ds mudbrick wall consisting of staggered courses of bricks 40cm x 40cm x 8cm. Appears to be retaining wall for large building to east.
tc ab f405

q

755	p,i	402	11	r388	200N	150E	m5588	30	153	10	Khabur sherds

i

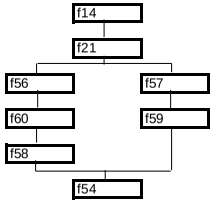
163	402	11	755	la	4	5	3	li	black	basalt tool

Appendix 1.3
Sample excavation log with entries for features, q-lots and items

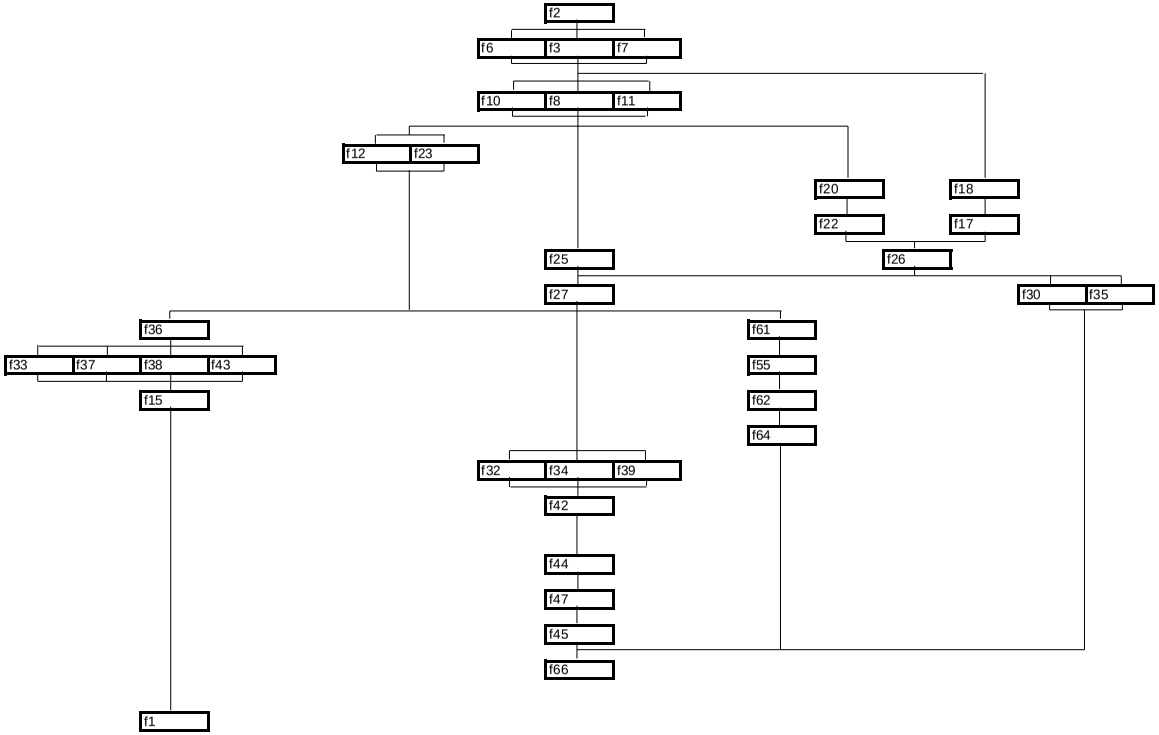
Appendix 2

Harris Matrices for each excavated locus in A9

A9k1 MZ10

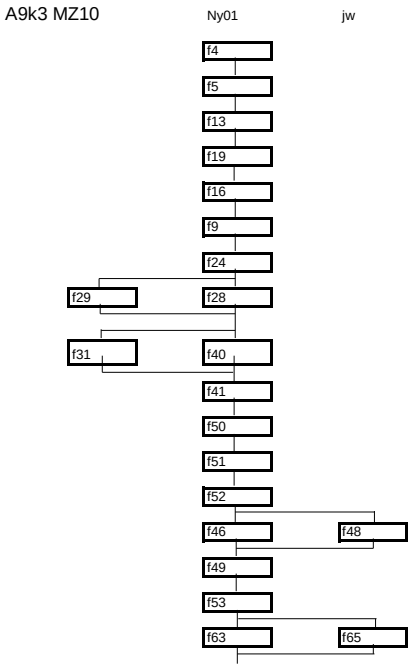


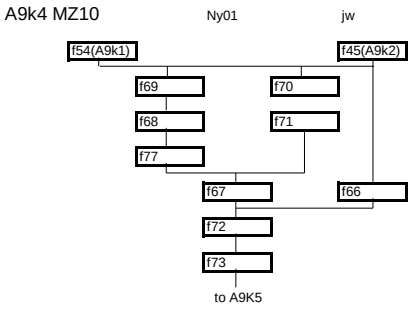
A9k2 MZ10

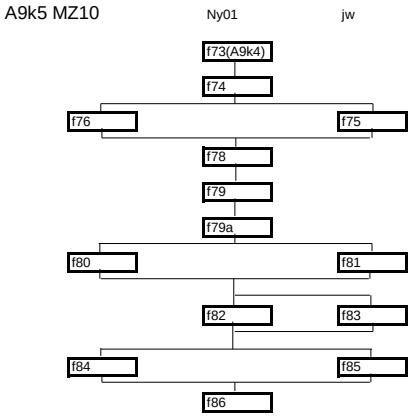


Appendix 2.1

Harris Matrices for A9k1, k2 for MZ10 (1997)



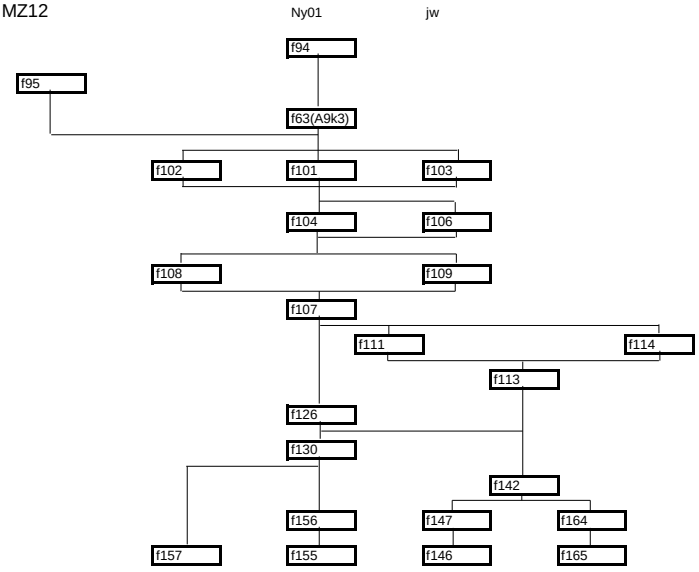




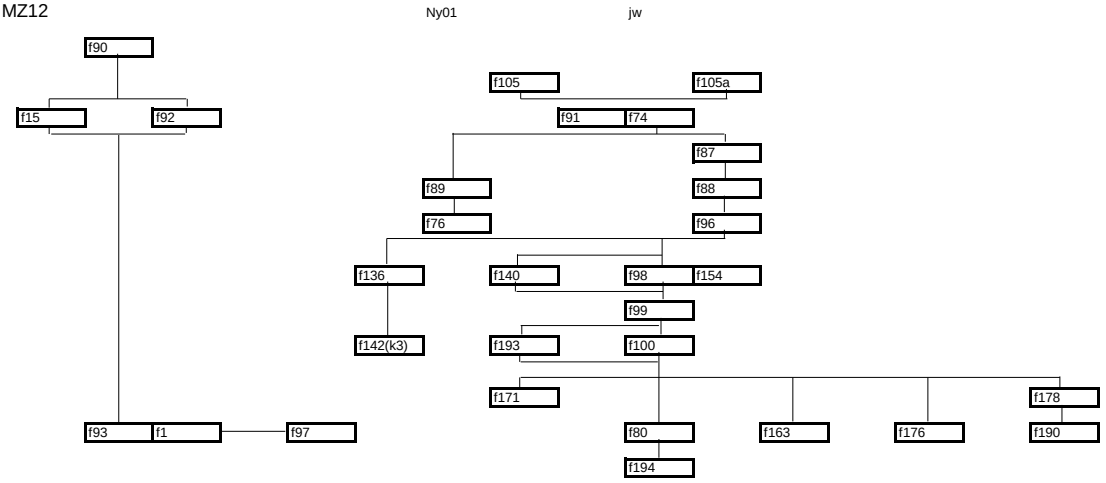
Appendix 2.2

Harris Matrices for A9k3, k4, k5 for MZ10 (1997)

A9k3 MZ12

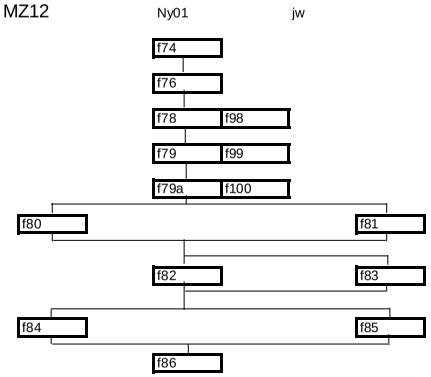


A9k4 MZ12

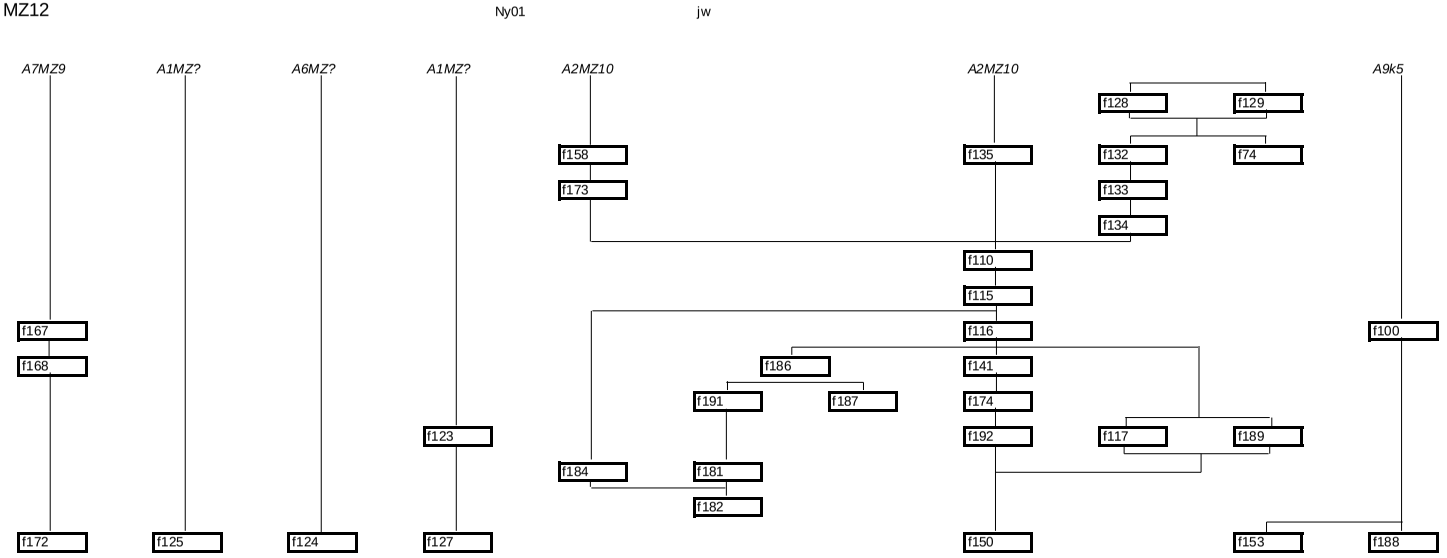


Appendix 2.3
Harris Matrices for A9k3, k4 for MZ12 (1999)

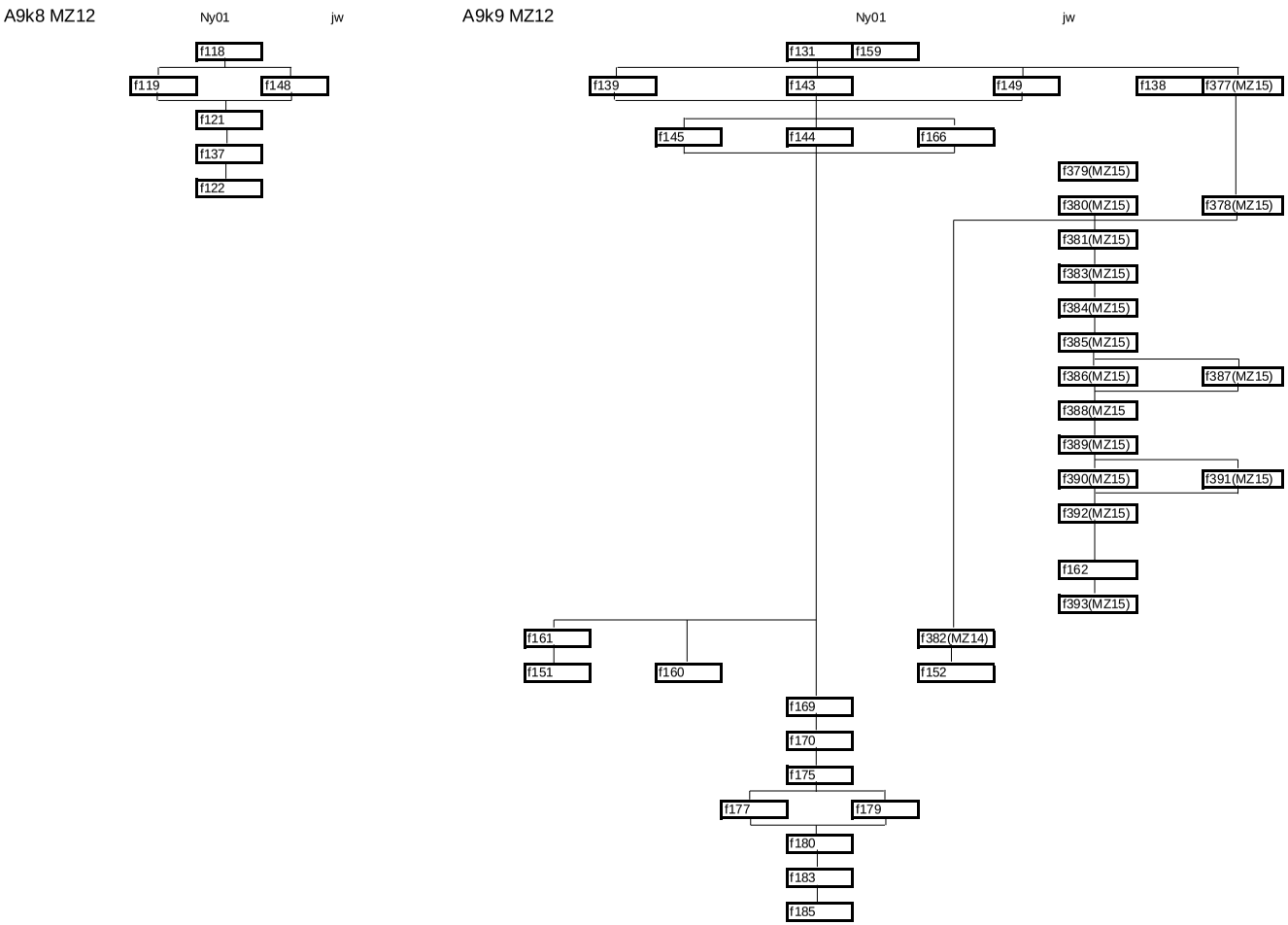
A9k5 MZ12



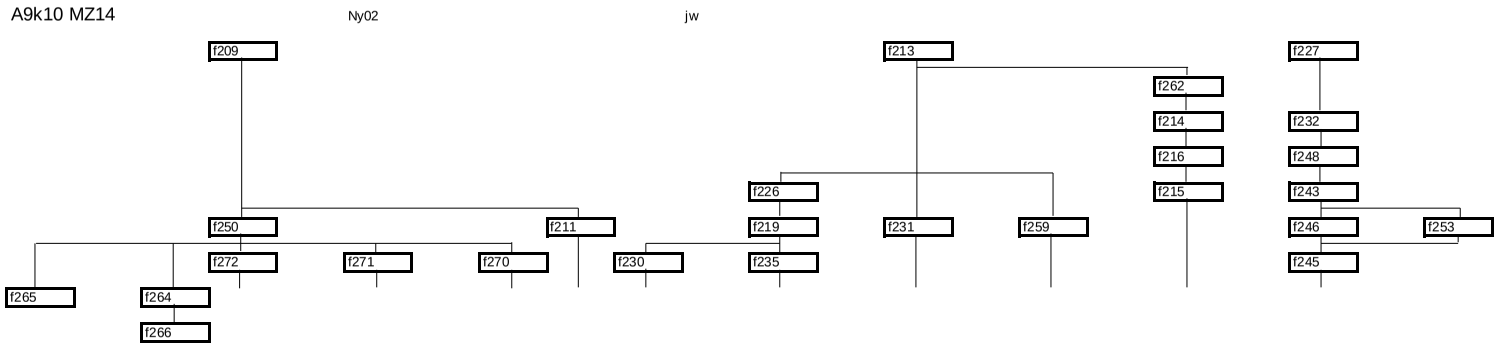
A9k6 MZ12

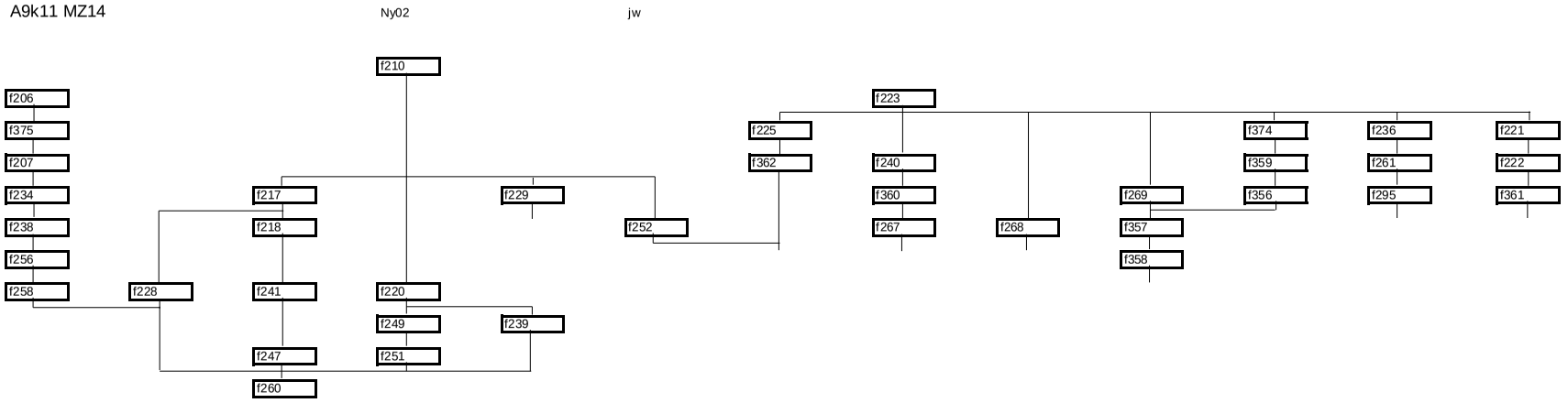


Appendix 2.4
Harris Matrices for A9k5, k6 for MZ12 (1999)



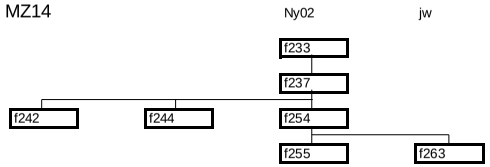
Appendix 2.5
Harris Matrices for A9k8, k9 for MZ12 (1999)



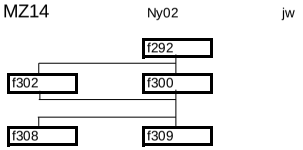


Appendix 2.6
Harris Matrices for A9k10, k11 for MZ14 (2001)

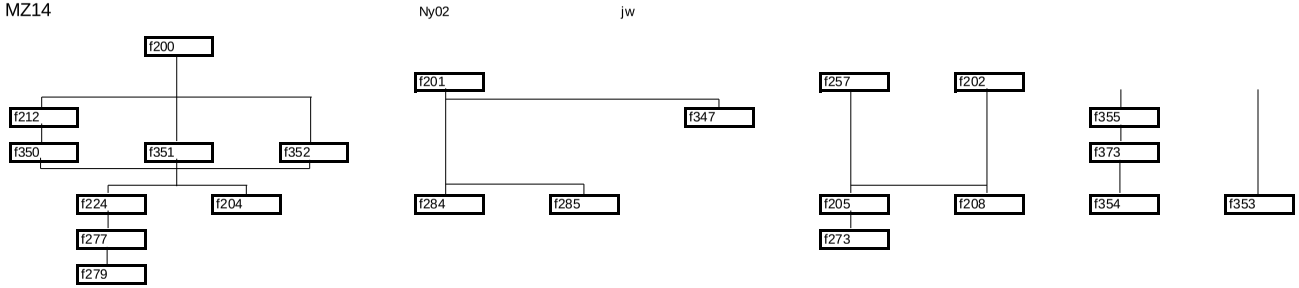
A9k14 MZ14



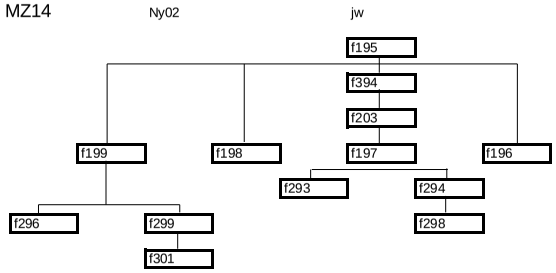
A9k15 MZ14



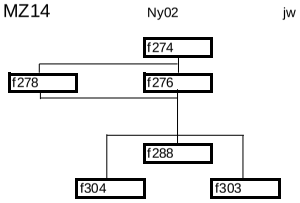
A9k21 MZ14



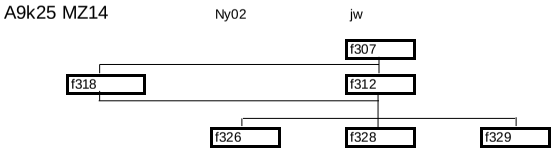
A9k22 MZ14

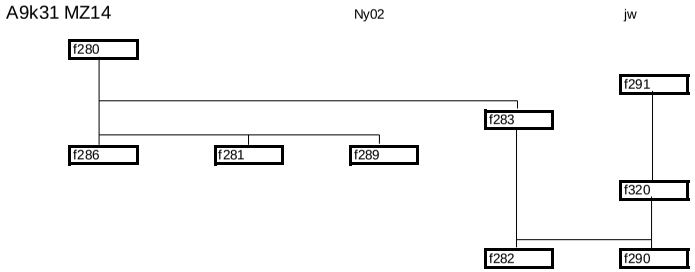


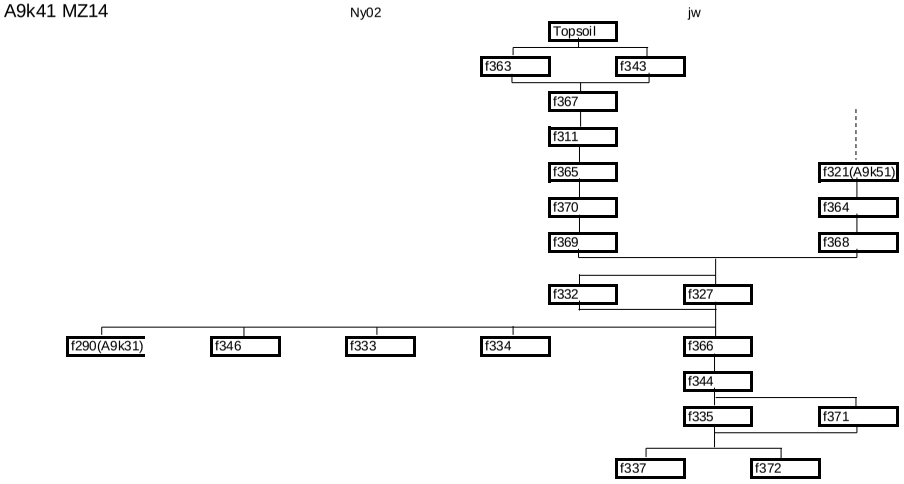
A9k23 MZ14



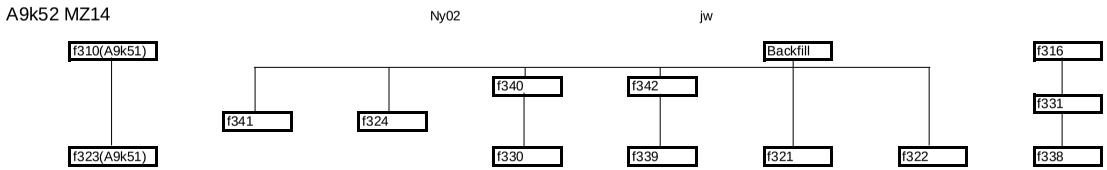
Appendix 2.7
Harris Matrices for A9k14, k15, k21, k22, k23 for MZ14 (2001)





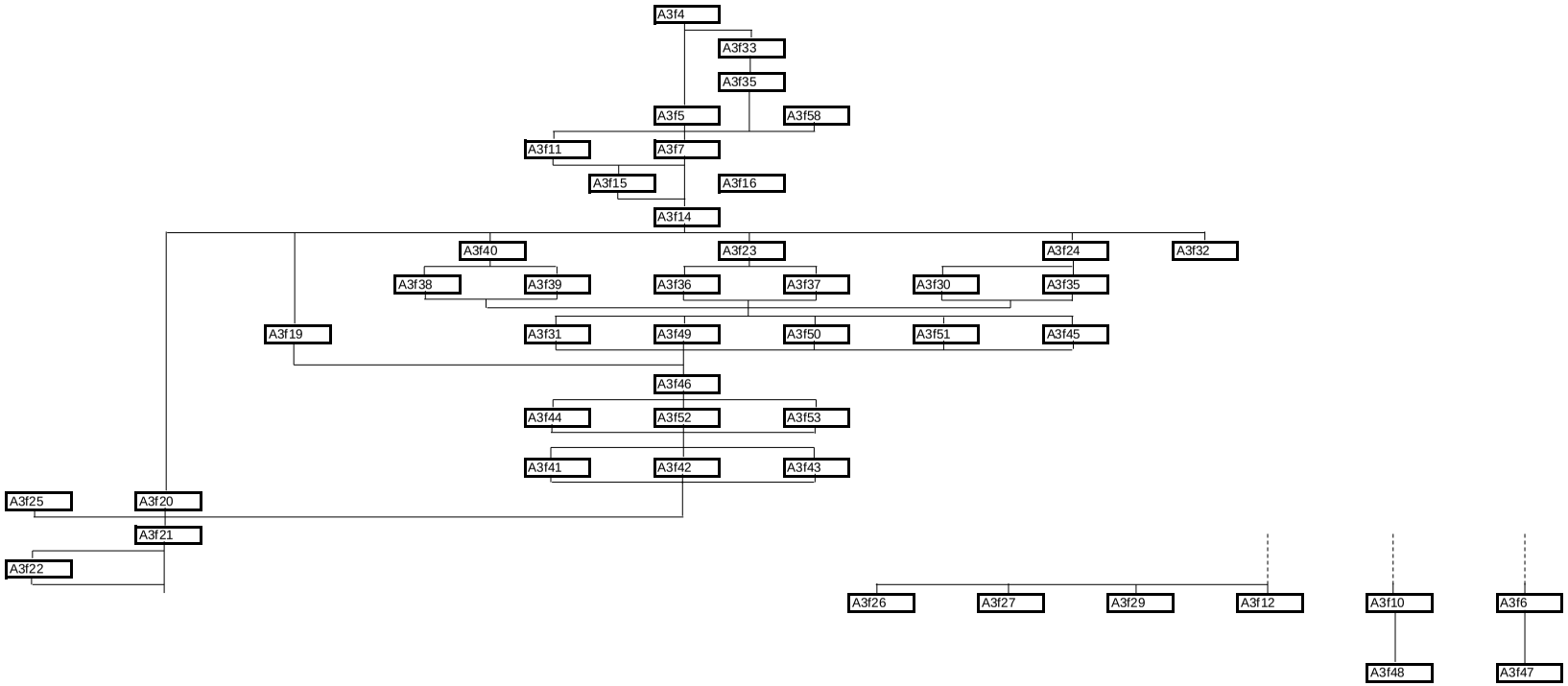


Appendix 2.8
Harris Matrices for A9k24, k25, k31, k41 for MZ14 (2001)



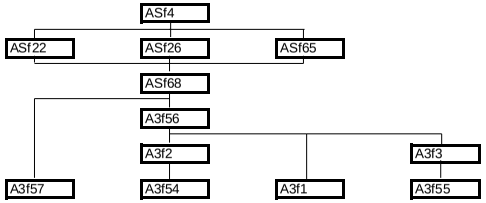
Appendix 2.9
Harris Matrices for A9k52 for MZ14 (2001)

A3k112 MZ4 (A9k41) Nx31 jw

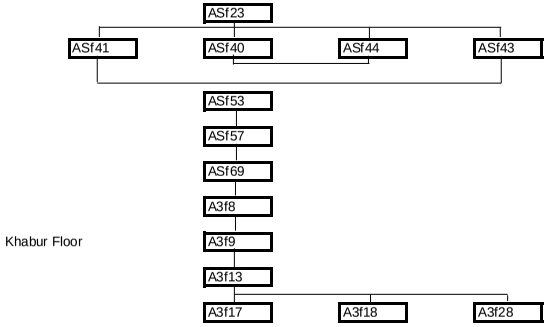


Appendix 2.10
Harris Matrices for A3k112 for MZ4 (1990)

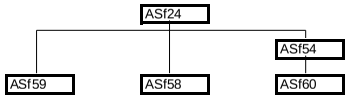
ASk111 MZ4 (A9k41) Nx31 jw



ASk113 MZ4 (A9k21) Nx31 jw



ASk115 MZ4 (A9k10) Nx31 jw



Appendix 2.11
Harris Matrices for ASk111, k113, k115 for MZ4 (1990)

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