The Early Bronze Age Town of Khirbet ez-Zeraqon: Excavations, preservation and site management

Moawiyah M. Ibrahim and Khaled Douglas

1. The Excavations

1.1 Introduction:
Similar to several regions of the Middle East, Jordan & Palestine witnessed a prosperous life and an increase of population towards the end of the fourth millennium B.C. This was also the case in north Jordan, which was entering an urbanization process during the third millennium B.C. and has been designated by Palestinian archaeologists as Early Bronze Age. The major Early Bronze Age II-III sites of northern Jordan were more or less centered around the modern town of Irbid. Sites like Tell Irbid, Tell el-Husun, edh-Dhanaba, and Khirbet ez-Zeraqon are considered as urban centers of this period (KAMLAH forthcoming). There were also smaller sites and villages attached to these centers. Sites like Tell el-Fukhar, Tell el-Mughayyir, and Khirbet Rahub are all located in the vicinity of Khirbet ez-Zeraqon.

1.2 Location and General Description
Khirbet ez-Zeraqon is a large Early Bronze Age town located ca.13 km northeast of the modern Jordanian town of Irbid (Figure 1). It occupies the eastern slope of a flat hilltop on the western edge of Wadi esh-Shallaleh (Figure 2). The elevation on the sides is much less and therefore the site is best accessible on the west and southwest sides. The land around Khirbet ez-Zeraqon is fertile and it has been used with the site itself mainly for growing wheat, barley and all sorts of vegetables.

The modern village of el-Mughayyir ca. 2 km on the northwest side is rapidly growing toward Khirbet ez-Zeraqon (Figure 3). Although the site covers the major part of the third millennium B.C, it was no longer populated towards the end of this period. A general survey conducted by the excavation team has shown that the area has a long occupational history, since the Epipalaeolithic to the present (KAMLAH 2000a). The area is also rich in its water sources and during the Roman times the evidence of a main road was
recovered to connect major Decapolis towns between Gadara/Um Keis and Adraa/Deraa along the main highway north-south. The site can be reached from Irbid via the villages Sal or el-Mughayyir from south and south-west and from Ramtha on the east crossing Wadi esh-Shallaleh.

Khirbet ez-Zeraqon was enclosed by a fortified wall of which contours were visible even before excavations started. The wall is missing on the side of Wadi esh-Shallaleh (Figure 2). We may never be able to determine whether this was eroded away or if it never existed in the first place; there may have been no need for fortification structures there, since the extremely steep incline of the cliff overlooking the Wadi may already have provided adequate protection. This wall enclosed an area of at least 8 hectares.

On the western side of the site, the city wall follows a north-south ridge in the center of the hill making a long curve, then it turns east towards the Wadi. The site extended 400 m
long North-South and varies in width from 50 m (at the northern end) to 230 m (at the southern end). The highest point of the site is a plateau, ca. 511 above sea level, at its northern end and it slopes down towards the curving Wadi at the southern end, its height ca. 485 m above sea level. The distance between the northern plateau and the southern end of the site is about 250 m, while the difference in altitude between the north and south is ca. 26 m. Therefore, one can speak of a north Upper City (or acropolis) and a southern Lower City. Excavations were concentrated in these two areas (Figure 2).

1.3 History of Research
The site was first identified by Siegfried Mittmann in the early sixties (MITTMANN 1970). In 1984, S. Mittmann representing the Biblisch-Archaologisches Institut of the University of Tuebingen and Moawiyah Ibrahim, representing the Institute of Archaeology and Anthropology of Yarmouk University, undertook a joint survey and excavations which ended in 1994 (IBRAHIM/MITTMANN 1986; 1987; 1988; 1989; 1991; 1994; MITTMANN 1994).
1.4 Fortifications and Gates
Being a "one major period site", the city displays a homogenous overall plan. In certain details, however, a more or less complicated development of the buildings is indicated, especially around the city wall and its gates. Excavations in both the middle part of the Upper City and the southern part of the Lower City exposed long sections (over 147 m) of the western wall, in places where gates were suspected. The wall was built with large, unhewn limestone boulders. They were laid according to a "dry-construction method", in which loose earth functions as a kind of mortar. The wall is interrupted in places by the so-called posterns. Six of them were uncovered, five in the upper city and one in the lower city, which are generally about 80 cm in width. These posterns or passageways served to facilitate pedestrian traffic by eliminating the need for long detours through and around the city.

The inner portion of the wall is ca. 3.5–4.5 m in width and appears to have been the backbone of the entire structure. It was reinforced through different phases on the outside (and also, in places, on the inside) by the addition of a series of "shells", built one after another, which increased the width of the wall between 6 and 7.5 meters. At some places in the Upper and Lower Cities the wall was made even wider by the addition of "shells" and bastions made of blocks, which measure ca. 30 m in length and 8 m in width (at the top). These bastions served to buttress the wall system and also protected the side entrances of the city gates.

Two gates interrupt the long western wall. In 1993, one gate was unexpectedly brought to light within the Lower City. It revealed the deepest cultural layers in the site, which reach ca. 3.5 m deep. The gate was connected to other building structures through streets net. 17 architectural phases have been recognized which were grouped in four main stages (DOUGLAS 1999, 11f.). Several defense systems have been used to protect the gate through its history.

The main gate, which was discovered earlier, is positioned in the middle portion of the fortification wall and leads to the central plateau of the Upper City. As the lower city gate, this gate revealed a very complex stratigraphy. The history of the gate developed through more than 20 architectural phases, which were summarized into two main stages (DOUGLAS forthcoming). The gate takes the form of a ca. 15 m long and 2 m wide corridor, leading the user first through the entryway (whose left and right sides are rounded off) and next between two towers and two rectangular rooms. This gives the passageway the form of a trumpet-shaped funnel leading into the city. During several phases, the outer entrance was protected by the erection of an additional gate built in front of the main one. The additional gates, which prevented frontal admission to the main passage, were successively moved back towards the city.

1.5 Temple and Palace
The main gate in the Upper City leads into an open area and two continuous streets separated three complexes from one another. Adjoining the open area to the north is a building complex consisting of two structures. The function of one of them connected
definitely, mainly in the early phases with the gate. To the south of this open area is a street which leads out from it towards the southeast and an enclosed temenos which was almost completely exposed in 1993. Four houses of varying sizes and types form a circle here around a courtyard that has a round platform on its western periphery. The platform has a diameter of 6.5 m and its present form stand ca. 0.5 m to 1 m high. It was built all at one time, not in stages, using chalk boulders. The remains of a lime plaster were found on its facade, and on its eastern side, four steps have been preserved. This platform was no doubt a sacrificial altar, as is indicated by a contemporary depository of ashes at the western foot. Furthermore, a contemporary parallel for this structure, which differs only by virtue of its larger dimensions, is found in Megiddo and is known as altar 4017.

On the southern side of the courtyard stands the main temple (B0.5), consisting of a temple house and anteroom (Figure 4), together having a total area of 10.5 m by 10 m. The cella is a broad room with an entrance in the longer side of this rectangular structure. Such entrances have been a basic feature of the house and temple architecture since the Chalcolithic period. In the broad room lay two stone slabs, probably served as a base for a wooden ceiling support. Benches of plastered stone line the lower walls. A threshold of flagstones leads into an anteroom, which has the same length as the main room to which it is attached but only half the width. The entrance to this anteroom is flanked by two bases for columns. It opens widely onto the courtyard; the only features which narrow the opening are some pilaster-like projections at the corners.
A small building (B0.4) —probably a secondary temple— flanks the eastern side of the courtyard and stands crosswise from the larger temple (B0.5); one of its corners almost touches a corner of the larger structure. In its northeastern corner stands a broad-room house (12.5 m by 7.8 m) with a staircase annex built onto the back wall (B0.1). The circle is completed by a small broad-room house (B0.2) directly to the north of the altar and obviously related to it functionally. It evidences a complex inner structure, and its stratigraphy is also complex.

1.6 Water Systems
The towns highly developed hydrological system must have governed life there for several hundred years. In addition to the springs of Wadi esh-Shallaleh, the inhabitants of ez-Zeraqon dug in the southeastern part of their town three stepped shafts down to the water table. One of these shafts measures some 100 m leads to the base of the Wadi. It seems that water was also collected from cracks of surrounding rocks. It is probable that water of this shaft system was used during enemy attack and other emergency situations. At the steep slope toward the Wadi closable water outlets, connected shafts were found that were probably used to water the fields in the Wadi.

1.7 The Pottery
The pottery of ez-Zeraqon shares the general characteristics with that of the other EB sites in the northern part of Jordan and Palestine. Nevertheless, it yielded new aspects of perspectives. The research conducted has so far presented the following results:
1- The evidence for the Chalcolithic and EB I could not be traced in the pottery assemblage in ez-Zeraqon.
2- Regarding the earlier phases of ez-Zeraqon, the pottery is characterized by the dominance of two groups known as Metallic Ware and Grain Wash Ware.
3- The assemblage of the later occupational phases included types which are familiar in the collection of ceramics in the north part of Jordan and Palestine, in addition to other unfamiliar types. The familiar types include bowls and platters with red slip and pattern burnish, spouted vessels, common storage jars and pithoi with combed decoration. Khirbet el-Kerak ware is present and a smashed jar of this hand-made pottery (now restored) was found in the destruction level of the temple area (GENZ 2002). The assemblage has close parallels in other sites of northern Jordan, the Jordan Valley, and the Esdraelon Valley. Unfamiliar types included pithoi and Grain Wash decoration which were attested in EB I context in other northern sites. Other indicators, believed to be of EB II date were recovered in EB III context at ez-Zeraqon (GENZ 2000; KAMLAH 2000b).

According to the petrographic analysis, Metallic Ware seems to come from northern Palestine and southern Lebanon. Khirbet el-Kerak Ware comes from the Jordan Valley where it has been found in large quantities in sites like Tell esh-Shume North, Beth Shan, Khirbet el-Kerak and other sites.
The latest occupational phase at ez-Zeraqon (post urban phase) is represented through typical EB IV hand-made pottery such as wide cooking pots with ledge-handles and globular vessels including red-painted pieces. This kind of pottery comes from temporary or seasonal settlement similar to many other sites in the southern Levant.

1.8 Glyptic and Other Finds
One group of finds deserves special attention. A large number (around 143) of pottery sherds with impressions representing 118 cylinder seals were found at ez-Zeraqon. This collection is probably the largest to be found at one single site in the southern Levant and forms over 50% of the corpus published from the entire region. A certain type of hard-fired vertically combed storage jar ca. 1 m high, resembles a pithoi without handles and often carries the impression of a cylinder seal on the shoulder. It represents a type of jar known as (Metallic Ware). Most of the seal impressions show geometric designs (diamond, spirals, grids, and others) while on ca. one third were animal and human figures which originate in Mesopotamia. Some seals show influence from Egypt and other Bilad ash-Sham glyptic traditions. All these examples confirm the importance of Khirbet ez-Zeraqon as a trade center during the third millennium B.C.

There were also some 40 terra cotta figurines found at Zeraqon including some figurative pieces like snake applications and animal-formed vessels. In comparison with other figurines from other sites of the Early Bronze Age in Jordan and Palestine, they constitute not only the biggest assemblage in quantity, they also represent the most variable group. This collection is probably the largest to be found at one single site in the southern Levant and forms over 20% of the corpus published from the entire region.

2. Preservation

2.1. Description of the state of the site
2.1.1. Before the excavations
The archaeological site of Khirbet ez-Zeraqon had not suffered from major destruction. However, partial damage has been traced in some areas of the site:

1. Parts of the south-southeastern part of the lower city had recently been bulldozed through the opening of a modern road leading to Wadi esh-Shallaleh, in which some parts of the fortifications were bulldozed and possibly some of the other structures connected to the fortification wall which have not been excavated.
2. The seasonal cultivation of the site eroded and disturbed the upper cultural layers of the settlements. This matter affected mainly the upper city where the cultural layers are shallow. Most of the structures there, namely the palace and the temple areas had been taken off until the first or second courses of their foundations.
3. The site used for short time in the first half of the last century as a cemetery.
This affected some parts of the site, mainly the fortifications in both the upper and lower city.

4. In the lower city, a small part of the site had been taken off through reconstructing a street in the Roman time.

2.1.2. During the excavations
The excavations at the site uncovered several structures whose bases were mostly intact and complete. These structures belong to three main groups of buildings: Administration buildings, uncovered in the upper city, including mainly the temple –and the palace complexes, the defense structures including the gates, the post gates, the towers and the fortification wall, uncovered in the upper- and lower city and the domestic buildings found in the lower city.

The structures of the latest stage are the best preserved in the site. However, most of the uncovered buildings at the site belong to the latest stage.

Brief description of the state of the structures found in the site during the excavations:

I. The administration buildings (Figure 4):

A. The temple complex: The foundations of the three temple buildings were intact and well preserved. They built from limestone, 70-90 cm wide, and set, in most cases, directly on the bedrock. These foundations were standing between 20 and 60 cm height. Door sockets, post bases, and several installations in addition to several intact and broken pottery vessels were found insitu inside these temples. The round altar was mostly well preserved and was standing between 60-90 cm height.

B. The palace complex: The foundations were standing between 20 and 60 cm height. Several installations (door sockets, post bases, silos, and Doorways) were found insitu.

II. The defense structures:

A. The gates: They are considered as the most well preserved Early Bronze Age gates in Jordan and Palestine. The walls around this gate are well preserved and stand almost 3.2 m. Several installations were found insitu. Some of the inner and the outer structures, which are connected to the gate were found in very good condition. The walls of the upper city gate were found also in good conditions and many installations were found insitu. Some structures of the late stage, in both gates, have been taken off completely, since theses gates were excavated up to the bedrock.

B. The post gates: Most of these post gates were found in good condition. The walls along the gates were preserved and are mostly between 60 and 150 cm in height. The post gates were blocked in the later phases and are still so.
C. The towers: They represent the most massive structures that were found in the site. They are located mainly around the gates and have different shapes: rectangular, square, and round. Most of these towers are in very good conditions. Some of them are preserved ca. 1,5 m height where some 30 x 10 m size. The big round tower (ca. 10 m diameter) that was found in the lower city has been fully removed.

III. The domestic buildings (Figure 5): Most of the foundations were found in good condition, which they were between 60 and 70 cm and in some cases standing between 20 and 60 cm height. Some of the excavated areas were covered with dirt during the last two seasons.

2.1.3. After the excavations
The last official excavations at Khirbet ez-Zeraqon were in 1994. Since that time the site has been visited by the authors four times (1995, 1997, 2000, and most recently 2002). Most of the structures in the site suffered from destructions. In some cases, the damage was totally and in other cases it was partially. It was clear that the damages to the structures were increasing through the time. The destructions were caused by two main factors: naturally and by humans. The rain, the wind, and wild plants are the main natural factors that caused the walls to collapse and filled the structures with dirt. Human destructions marked by the pits dug in several places and sometimes in the walls and inside the structures where people were looking for treasures. The site was used particularly as a place to keep the domesticated animals from some local people. Some areas around Khirbet ez-Zeraqon, namely close to the lower city were bulldozed and leveled to be prepared for planting.
2.2. Restorable areas and structures
The places that are still restorable in *Khirbet ez-Zeraqon* are:

1. The uncovered fortification wall in both Upper and Lower City mainly around the gates. These portions of the city wall can be rebuilt to at least 2 m high while the other parts for 0.5 m since their foundations are still not excavated. This will raise up the boundary of the city.
2. The two uncovered gates and the post gates in the Upper- and Lower City, including the towers and bastions around them. For the post gates, it is worth it to restore the ones that are located around the main gates in the Upper- and Lower City. The gates can be rebuilt for at least 2 m height. The inner gate- chambers in both gates can be fully rebuilt to their original heights and covered with a roof, since their foundations still stable and strong. Their height should be between 3 m and 3.5 m, however some walls of the west gate – chamber in the lower city was standing ca. 2.5 m. For the missing installations and the damaged walls from the gates area it is still possible to restore them again to their original positions, depending on the well trusted documentations of the site (plans and photos).
3. The three temple buildings with the temenos wall.
4. The round altar with its well preserved stairway.
5. Some parts of the palace, namely the main two buildings and probably some rooms of the storage area.
6. The streets in both upper- and lower city.

2.3. Methods of restoration
1. Documentations: Before the restorations start at the site, both excavated and unexcavated areas should be documented. The rest of the uncovered structures must be documented well by drawings and photos. Using the excavation drawings and the photo as a base for rebuilding the structures. Drawing sketches for each unit of the structure including the isometric plans and models for each single structure before the restoration start to avoid any mistake which could cause more damage to the building. The restorations processing should be documented systematically.
2. The excavated areas must be cleaned from dirt and wild plants. Collecting the fallen stones from each structure separately to reuse them to restore the same building. Taking off the rest of the excavations balks by digging them up systematically and documenting them on the bases of the results of the old excavations for each area.
3. Studying the main factors that affect the stability of the archaeological structures. Including the soil, humidity, and rainwater. This requires a special drainage system which should not affect the archaeological features of the site. These factors should be considered through the restoration procedure.
4. Restoration of the structure elements: Most of the buildings should be rebuilt at a height between 1 m and 1.5 m to keep their main plans clear and to protect them from the destructions. The original foundations of the walls should be protected and their strength increased by filling the gaps between the stones with mortar. However, it is important to try to use as much as possible the same materials, methods and constructions that were used in the Early Bronze Age. Since the local nature around the site is rich with the original raw materials that were used to build the site. Most of the structures were built from mud bricks with a height of 40-60 cm, with stone foundations. The samples of the mud brick that were found during the excavations will help to reproduce the same kind of mud bricks and use them for the reconstruction. The gate chambers in the Upper and Lower City can be rebuilt to their original height (3-3.5 m). Their roof can be rebuilt with help of wood beams and mortar (Figures 6-7).

3. Site cultural management

*Khirbet ez-Zaraqon* is highly recommended to be protected and preserved, since it has major archaeological features that distinguish it among many other Early Bronze Age sites in the region. However, most of the archaeological-tourist sites in Jordan are mainly dated to the classical periods. The preservation and restoration of the site will help to make the site a major center for the national and international tourism.
3.1. The importance of the site as a tourist center

The importance of Khirbet ez-Zeraqon for tourism raise from its location which can be seen through two main perspectives, archaeological and environmental perspectives:

1. Archaeological perspective:
   The archaeological remains in the region of Wadi esh-Shallalleh is considered to be one of the most remarkable examples of the cultural history of North Jordan. 25 Archaeological sites covered all periods, from the Stone Ages to the Modern Ages. They were found in the area of Khirbet ez-Zeraqon during the archaeological survey that covered an area of 6x12 km (Kamlah 2000a). These sites represent the historical heritage of the region.
   Khirbet ez-Zeraqon is the main Early Bronze Age site in the region with extensive fieldwork and excavations. This site might reflect an example of urban life in the area of Irbid on the southern side of the Yarmouk Valley. It yields a well preserved monumental fortifications and other architecture. The uncovered materials from the site with its highly developed water system show that the site was a central city in the region during the Early Bronze Age.

2. The geographical and environmental position:
   The attractive environment of the region is distinguished with its rich nature that it is still undisturbed by modern activities. Three natural springs located in the immediate vicinity of Khirbet ez-Zeraqon, attractive natural caves, valleys and mountains, fields of olive trees, several kinds of fruit trees, and the nice weather are the main attractive features of the of Wadi esh-Shallalleh region. The region of Wadi esh-shallalleh is accessible easy through a modern road.
4. Recommendations

Through the restoration of the site, the region will get a new tourist dimension. To protect the site from destruction the following recommendations should be taken seriously.

1. Establish a restoration committee which consists of some of the excavation team and architectural preservation specialists.
2. Continue the excavations in some uncompleted areas and prepare it to be part of the open museum. Long-term excavations directed by a local team working during the year, so the visitors can see the excavations too.
3. Cleaning one of the shafts of the water system and make it accessible for tourists.
4. Build a heritage compound (village) in the area around Khirbet ez-Zeraqon. This compound should show the form of life in the region from the Ottoman period until the beginning of the 20th century (Bedouins and village life style). This part could contain: Traditional workshops (pottery, glass, wood, textile..., etc.) and traditional recreation center (cafes and restaurants).
5. A special site museum should be built to show the archaeological finds from the site: This museum should contain a movie theater where it can show short movies about:
   a. Discovering and excavating the site.
   b. Show the restoration processing.
   c. Restoration plans for some structures in the site.
   d. Short movie representing the daily life in the site during the EB.
6. With the help of computer technology, creating a three dimensions image for the site can be useful to show an image of the site during the Early Bronze Age and the living style in the site of one of the main stages.

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