STUDIES IN THE HISTORY AND ARCHAEOLOGY OF JORDAN

VIII
The History and Archaeology of Jordan: The
Second Millennium BC

The past 20 years of archaeological work in Jordan have
led to a major reassessment of the second millennium BC,
one of the most pivotal in Jordan’s long history and with profound consequences for world civilization. A genera-
tion ago, Nelson Glueck’s nomadic hypothesis still held sway. According to this theory, based on field surveys when the Bronze and Iron Age pottery sequences of Transjordan were poorly known, only nomads and pastoral transhumants roamed the plateau south of Wadi az-Zarqa’ from the beginning of Middle Bronze (MB) IIa (ca. 1900 BC) down to the end of the Late Bronze Age (LB), which Glueck ended around 1300 BC.

It can now be demonstrated that the city-state system, which was well-established west of the Jordan River earlier in the millennium, had already penetrated into Jordan from the north by around 1900 BC. Newly established urban sites, such as Pella in the northern Jordan Valley, probably served as large regional centers that coordinated the trade of a range of agricultural and finished goods from intermediate centers and producers in other areas of the country. Southern Palestine was the hub of this MB economic network, which had reached its high point by the “Hyksos” period (ca. 1670-1550 BC).

Since my career and research interests have paralleled and significantly contributed to the development of new paradigms for understanding the millennium, as well as in promoting a more scientific approach to archaeology, it is only natural that this overview be a personal retrospective of sorts. As will be seen, many points are illustrated by drawing on surveys, excavations, and laboratory research that I have been directly involved in.

Glueck’s Nomadic Hypothesis and LB I Urban Culture

When I was introduced to Jordanian archaeology a little more than 20 years ago, my decision to begin working professionally was in direct response to the apparent inadequacy of Glueck’s nomadic hypothesis. In 1976, LB pottery vessels, to cite only one category of material ar-
tifacts, came onto the antiquities market in ‘Amman. They were traced back to the Baq’ah Valley, a fertile and well-watered expanse 20km northwest of the capital, and were just as sophisticated in style and manufacturing technique as anything found west of the Jordan River. The locally made pottery was accompanied by pieces of imported pot-
tery from Greece, in particular Mycenaean IIIIB stirrup jars and Cypriote White Slip IIb milk bowls, making it clear that Transjordan was part of the international trading network of the period. The contrast with the nomadic hy-
pothesis could not be greater: artifacts attesting to ad-
vanced technologies and almost identical styles as-
semblages as those associated with small, medium, and large-sized settlements west of the Jordan could only be explained by a sedentary, more complex society on the central Transjordanian plateau.

The Baq’ah Valley Project (McGovern 1986; 1989), which I directed for five seasons from 1977 to 1987, rep-
resents the scientific confirmation of this alternative hy-
pothesis. Intensive ground surveys, geophysical pros-
ppecting, and aerial surveying were followed up by test soundings at sites throughout the valley. In addition to finding and excavating undisturbed burial caves of the second millennium BC, the main settlement site on the northwestern side of the valley was located at Khirbat Umm ad-Donnain. Its name alone —“the mother of the gold coins or dinars” — promised untold riches! Apart from yielding any scraps of the precious metal, however, the archaeological light this site has shed on the central Transjordanian plateau from ca. 1550 BC to the end of the millennium is what has made it such a profitable site to excavate on a larger scale and study.

One very instructive lesson was learned at Khirbat Umm ad-Donnain regarding surface surveys of second millennium BC Jordanian sites in general. The survey of this site was carried out in an exhaustive fashion — collecting every conceivable artifact (ceramic, lithic, bone, etc.) from the total 2.5 hectare area of the site, which had been enclosed by a 2m thick double wall of boulders as

revealed by a detailed plan of visible architecture. Since the site was built on a series of terraces above Wadi Umm ad-Donnain, it might be anticipated that archaeological remains from every period represented on such a skewed “fall” would have washed down the slope, a vertical drop of about 30m, and be represented somewhere on the sur-
face. To be sure, quantities of pottery and other artifacts were recovered from every sub-phase of the Iron Age (in-
cluding the Early Iron Age, constituting the end of the sec-
ond millennium), along with Roman, Byzantine, and Mamluk materials. LB II (ca. 1400-1200 BC) pottery was also well represented, and even a stray sherd of what ap-
ppeared to belong to the late MBA. What did not show up on the surface were any artifacts that could be identified as belonging to LB I (ca. 1550-1400 BC). Excavation was needed to reveal this pivotal period in the second mil-
leum BC history of Jordan.

No sign of LB I was found on the surface, because this period constituted the lowest occupational level of the site, built on bedrock and sealed, after its destruction, be-
neath 5m of later occupational debris. Once having ex-
cavated and removed later Iron Age and Roman struc-
tures, a unique building, which was in use from ca. 1480- 1300 BC (LB IB-IIA), was revealed. The building, with walls 1m thick and some still standing 1.5m high, had been destroyed by a fire, and carbonized beams from the roof had collapsed onto a thick, well-made plaster floor. Two layers of beams, made of 300-500-year-old olive trees, were found, running parallel and at right-angles to one another, with a clay layer in between; though burned, some of the beams were 20cm in section, with mortise joints down visible. Few artifacts were found on the floor of the building, but beneath the floor, directly over bedrock, was a 60cm thick accumulation of burnt and unburnt an-
imal bones. Cattle, sheep, goats, and perhaps one or more other mammals (donkey, sheep/goat, and mountain lion) were represented — in other words, both domesticated and undomesticated species, including two animals (the gazelle and mountain lion) no longer living in the region.

The foundation trenches for the LB I building were dug down into the bedrock. Before the plaster floor was laid, the builders placed foundation offerings in the trenches, including a jewelry pendant of standard Syro-
Palestinian type (McGovern 1989: Fig. 6.3) and glass and Egyptian Blue frit beads that represent some of the ear-
liest vitreous materials from the ancient Near East (McGovern 1989: Figs. 1-2). More important for dating purposes was the pottery, which included a mistinted hand-made lamp, an imitation of a Cypriot white-shaved juglet in an unusual black ware, and well-made, bi-
choned painted bowls and kraters of local, 15th-14th century BC types (McGovern 1989: Fig. 5).

Even more intriguing, the layout of the rooms in the
Khirbat Umm ad-Donnain building and its construction were nearly identical to a contemporaneous structure that has long fascinated scholars — the ‘Amman Airport Building, built about 15km to the southeast (Henneaux 1966; Hankey 1974; Herr 1983). This building, which was discovered at the old airport when a runway was put in but which has since been covered over by another runway, is a perfectly square 15 x 15m building. Like the Khirbat Umm ad-Donnain structure, a “deducatory fill” of animal bones had first been deposited over bedrock, and walls were precisely 1 or 2m thick. Although some finds are re-
corded as coming from above the floor, a treasure trove was found beneath the floor, including Mycenaean, Cy-
priote and Minoan pottery, gold, silver and bronze jew-
elry, etc.

Although such rich deposits are yet to be found at Khirbat Umm ad-Donnain, what is remarkable is that, to the extent that it has been exposed, the Khirbat Umm ad-
Donnain structure closely parallels the layout of the ‘Amman Airport Building. Thus, the northern rows of both buildings were exactly 2m wide, and had doorways spaced 2.5 and 3.5m apart and opening to the south. Based on analogy to the ‘Amman Airport Building, a massive pillar was hypothesized to be at the center of the Khirbat Umm ad-Donnain structure. A sounding was sunk at this spot, and true to form, a large boulder, 1m on a side, was exposed. It proved to be the upper drum of a pillar compr-
ised of three drums, the lowest of which was hewn in a 1m3 of bedrock. It’s not often that one can use another building’s plan’s direct course of excavation. It would seem that 3500 years ago, one Jordanian architectural firm had perfectly copied on construction in the area, and they even worked according to the “metric system.”

Both the Khirbat Umm ad-Donnain and the Amman Air-
port buildings were probably destroyed sometime during the 13th century BC. The characteristic LB IB pottery was dug into the destruction debris of the Khirbat Umm ad-Donnain structure (McGovern 1989: Fig. 7); also see McGovern 1986: 61-63, Figs. 47-48). Besides more bones of the same species of animals as those in the "deducatory fill" and foundation trenches, one of these pits yielded the front part of a pottery rhyton in the form of a bull, a complete example of which came from a con-
temporaneous, nearby burial cave (cf. McGovern 1986: Fig. 88. 1-2). This zoomorphic type, which generally oc-
curs in late MB and early LB contexts at other Levantine settlement sites, has obvious religious associations, as a manifestation of the Canaanite sun or weather god.

The finding of burnt human bones near the central pil-
lar of the ‘Amman Airport Building has led to specula-
tions that human sacrifice or cremation, as part of a mor-
tuary cult, was carried out here. As yet, no human bones, burnt or otherwise, have been recovered from the Khirbat Umm ad-Donnain structure that might help to resolve this
The Consolodiation of Urban Culture during the First Half of the Second Millennium BC

What is most striking about the pattern of permanent Transjordanian settlement in the first half of the millennium is its concentration in the northern Jordan Valley in MB IA. A gradual decrease in settlement throughout the country can be documented from surveys and excavations for the Early Bronze Age (EB) IV period, which can be tentatively dated to ca. 1900 BC. However, fairly large, fortified towns at Khirbat Iskan dar, along the northern bank of Wadi al-Wâla on the southern Mâdâb plains, and at Tall Ibtîn, in the southern Jordan Valley, make it clear that settled life, while it might have contracted, had not disappeared (see the overview of the EBA by Kay Prag in SHAJ VII).

The pioneering East Jordan Valley Survey of Yassine, Sauer, and Ibrahim (1988) shows that the number of sites in the northern valley actually doubles from EB IV to MB IA — 8 recorded sites versus 16 in MB IA. Contrasted with the above pattern of EB IV, the MB IA sites are evenly spaced at the mouths of and between the major wadi systems, as one moves north to south from the Yarmuk River to Wadi az-Zarâq. In the southern valley, the number of settlements appears to decrease from EB IV to MB IA.

More surveys and excavations are done on the northern bank of the Yarmuk at Wadi el-Mujib and elsewhere in the region, but the evidence for the period emerged from the survey of Maxwell Miller (1991) on the Karak plateau, between Wadi el-Mujib and Wadi al-Hasâr. Whether the pottery sherds were associated with architecture is uncertain; in any case, permanent occupation was on a small scale. Burcon MacDonald's survey (1988) farther south, along Wadi al-Hamra, showed other sherds, and, in the conclusion, perhaps correctly, that there is essentially a settlement gap between the 18th and 13th century BC here and that this is one region where Glueck's nomadic hypothesis is literally correct.

South of Wadi al-Hasâr, MB IA settlements are also yet to be found. The possibility that they will eventually be, however, should not be ruled out. For example, in the northern basalt or "black" desert of Jordan, there are several stone buildings held up intact ceilings of the so-called "circuit" of probable MB IA-B date (Helms 1975). Other parts of the northeastern and southern deserts of Jordan have been explored only to a limited extent, but even here, in the vastness of the Badya that make up 45% of Jordan's total area, second millennium BC stone ruins are reported, as for example at "Iraq el-Qattiyât, northeast of the al-Azraq oasis near Jabal Qurna (Elgeld 1997). It should be stressed that such "desert" sites, which are best understood against an urban backdrop, have thus far only been located in the northeastern part of the country. The modern precipitation level of 200mm annually is probably comparable to that in antiquity, and is sufficient for year-round settlements and dry farming.

To date, the settlement pattern and material culture of the northern Jordan Valley provides the best illustration of the reassertion of urbanism in MB II, following its reassertion in EB IV. Pella, at the mouth of Wadi al-Hammeh, had a fortification wall, which is in accord with its mention as Peher/Piliyum in the second group of Egyptian Excavation Texts, probably dating towards the end of MB IA (McNicol et al. 1992; for further references and discussion, see Magness-Gardiner 1997). Nearby Tall al-Haytâ, at the mouth of Wadi al-Yabis, showed no break from EB IV into MB IA, and, as one of the few thoroughly excavated MB site settlements in Transjordan, had a continuous sequence of occupation through the period (Falconer and Magness-Gardiner 1995). Why should the strongest MB IA influence be apparent in the northern parts of Transjordan, and gradually decrease to the south? I would argue that these developing connections are closely related to an urbanization process occurring elsewhere in Palestine (for general overview and current viewpoints, see Oren 1997). West of the Jordan valley, at sites such as Jericho (expansionist) fortifications and extending over large areas that most probably reflected a corresponding increase in population, we are talking about a territory covering up to 7800 ha (Yadin 1972). Even more dramatically, a glacis fortification system at Asemkelon, just north of Gaza, probably already had some 2km circumference circling an area as large as 150ha (Stager 1991). The use of the fast wheel to make pottery and the extensive alloying of copper and gold in bronze objects is first attested in this period. The sheer manpower required to build these cities and the sophisticated technology imply that crafts- men and groups of peoples must have immigrated into the country from city-states farther north, where places to do not appear to have suffered a decline in EB IV. Native peoples would also have participated in the process, either voluntarily or by coercion.

This model is supported by the largest Neutron Activation Analysis (NANA) project ever carried out in Old World archaeology, which I have pursued over the past decade (McGovern and Hartbeult 1997; McGovern 2000).
Nearly 1400 samples of distinctive MB Syro-Palestinian pottery types, including Canaanite Jars and Polished, Levantine Painted and Tall al-Yahudiyeh wares, have been tested from coastal and inland MB sites up and down the Eastern Mediterranean, with a heavy emphasis on Tall Dab'a, the "Hyksos" capital of Avaris (Bietak 1996), in the northeastern Nile Delta. By establishing tight "local compositional groups" that are chemically "fingerprinted" by modern clays, it is possible to determine when pottery vessels were originally manufactured and their bearing on Levantine trade and even the movement of ethnic groups during the MBA.

The NAA study makes it clear that Southern Palestine had established itself as the hub of an economic network early in MB IIA. Its imports and exports arrived from and went out by ship to sites along the coast, including Avaris, and goods were also transported overland to inland Lebanon (the Biqa' Valley) and Syria (the Orontes Valley and Tall Madikh Elita). Southern Palestine encompasses ca. 4,000km² area along the southern littoral of Palestine, where a red loess clay with a characteristic chemical composition is common and was used to make ancient pottery. The region includes the MB sites of Gaza (largely unexcavated), Tall al-Ujiil (often identified as ancient Sha'ruhen, a bastion that the "Hyksos" defended for three years before surrendering to the Egyptians around 1550 BC), Ashkelon (a likely candidate for Southern Egypt because of its large size), Tall al-Farah South, Lachish, Tall Jerinneh, Tall al-Farah South, Tall Hawar/Tall Abi Husayn, etc. The inland sites of Tall Bayt Marsi and Lachish. It is probably significant that the local compositional groups for Tall al-Ujiil and Ashkelon ("asqaliun") were closely related pottery forms from this region that was exported elsewhere, although workshops are yet to be located at these sites.

Based on relative pottery chronology, Tall Dab'a was a transshipment port, and the MBA pottery discovered during an early phase of MB IIA than that associated with the founding of city-states along the Levantine coast, including Ashkelon in Southern Palestine and Tall Aphiq in the northeastern region. Since the MBA IIA phases of Tall Dab'a were dominated by pottery imports from Southern Palestine, with only a few vessels coming from sites farther north, the stimulus for settling Avaris is best explained by an expansion of economic interests primarily from this nearby region. During a period of crisis in native governance, this development paved the way for the "migration" of Southern Palestinian peoples to Tall Dab'a, and accounts for the tremendous growth of Avaris, covering over 2.5km² by MB IIB-

The wholesale translocation of Syro-Palestinian culture to Egypt was manifested in the temple and palace architecture at Tall Dab'a/Avaris. Burials, often a sensitive indicator of ethnic origins, at the latter site and in Southern Palestine are virtually identical. Tombs were made of baked mudbrick, accompanied by equid/buff burials, and supplied with the same Syro-Palestinian pottery types (those at Avaris very often being imported from Southern Palestine according to the NAA results), metal weapons and jewelry, ivory scapulas, etc. Moreover, foodways and cuisine are among the most conservative elements of any culture, and the characteristic hand-made, flat-bottomed handmade cooking pots were used, and the hand-made vessels were typically used in both regions over several centuries (MB IIA-B).

As Avaris grew, a more regulated trade primarily with Southern Palestine developed from MB IIB onwards. Canaanite Jars, which were imported by ship, dominated the picture. Organic analyses indicate that the amphoras generally contained resinated wine. Based on how many Canaanite Jars have already been excavated, Manfred Bietak (1996: 20) estimates that as many as two million Canaanite Jars would be recovered from MB levels of the site, if fully excavated. Based on the NAA results, at least three-quarters of these vessels were imported from Southern Palestine, which converts to about 6000 jars per year or almost 20 jars per day imported over the 250-year life-time of the city. Assuming many were filled with wine, that should have quenched the thirst of the upper class!

The dynamics of MB settlement in Transjordan would have been very much influenced and conditioned by the emergence of powerful city-states elsewhere in Palestine, which eventually culminated in the "Hyksos period" proper. It is therefore possible that these MB settlements were built in the northern part of the country in MB IIA, and by the end of the MBA, the urban phenomenon was well-attested as far south as Tall al-UMaryat where a glacis fortification was dug out and erected on the western side of the mound (Herr Forthcoming a). MB IIB-C sites occur throughout the greater "Amman region. In the vicinity of the capital, which probably boasted large walled-cities at this time, rich tombs of the period, similar to those at Jericho and Pella and yielding Hyksos-style scarabs, alabaster vessels and "silvered" pottery have been excavated (see, most recently, Naber 1991; Zayadine et al. 1987). Towns were even built right out to the edge of the present-day desert — including a walled settlement at Salhiti, which appears to have been raided in the 16th century BC and pillared structures at Abü as-Sunayss to its east (Lehmann et al. 1991).

The link between Jordan's involvement in a socio-economic network emanating from Southern Palestine has already been touched on in a paper I presented at the sixth international congress (McGovern 1987). The NAA results from Tall al-Fakhur vessels form a very small MB IIA pottery corpus, thus far restricted to the excavation of a burial and associated occupation. Imported from Southern Palestine, viz., a wheel-thrown globular jar and a finger Impressoted rope applique from a typical "Hyksos"-style cooking pot. The importation of a cooking pot from Southern Palestine is very significant, as already stressed above, because of the conservatism of foodways. Although every other MB IIA pottery type was made on the newly introduced fast wheel, the handmade cooking pot continued in use for over 350 years before it was finally displaced by the wheel-made, hole-mouth type.

Transjordan probably provided mainly agricultural products — such as wine, olive oil, tree resins, possibly herbs and honey, and cereals — in exchange for goods from Southern Palestine and elsewhere. The trade connections of an earlier period, which have been reconstructed by the powerful approach of combining NAA (to determine the origin of a pottery vessel) and organic analytic (to determine what the vessel contained), bear out this contention. In EB IB (ca. 3150 BC), some 700 wine jars were transported overland by donkey from the hill country of western Palestine, the Jordan Valley and Transjordan to Abydos on the middle Nile River, a distance of about 900km (McGovern 1998; McGovern et al. 1997). At Abydos, they were deposited in the tomb of one of the first kings of Egypt, Scorpion 1 of Dynasty 0. In this case, the trade in resinated wine appears to have been gone directly from producer to consumer. More recently, wines, which presumably grew rich on the profits, had intruded themselves into the process by the MBA, since pottery vessels from Transjordan are then no longer attested in Egypt or even Southern Egypt.

Pella and other regional centers in the Jordan and Jezreel Valleys probably coordinated the trade of goods from elsewhere, and the most extensive and richest MB remains have been exposed at Pella, where occupation continued from MB IIA down to the end of the MBA. The transitional period from MB IIIA to MB IIB is especially well represented here. Epitomizing the eclectic artwork of the times, a marvelous inlaid ivory and ebony box in the form of an Egyptian-style casket, an unglazed gabled shrine was recovered from a pit, associated with an LB I palace (below). The combination of Egyptian (e.g., intertwined uraei, winged solar disk at the top, djed-pilaring and lotus buds) (cf. Lamesch 1987), (e.g., epigraphic letters) remnants is reminiscent of the designs on the jewelry pendants from LB IA Tall al-Ajlil in Southern Palestine (see McGovern 1985). Yet, the simplified wadjet eyes, without eyebrows and falcon markings below the eye, and the vipers, lacking horns, do not follow standard Egyptian artistic canons. Timothy Potts' proposal (1987) that a Southern Levantine influence re-introduced this piece of art — suggests the northeastern Nile Delta but Southern Palestine itself is just as likely — is a good one, and might even represent payment in kind for goods coming from Transjordan.

Chocolate-on-White Ware: A Highpoint of LB I Urban Culture and Technology

Before scanning the remainder of the millennium, an excursion on Chocolate on-White pottery highlights how its development in the Jordan Valley led to the production of some of the finest pottery in the Levant before Hellenistic times. This beautifully contoured, wheel-thrown pottery, with its white slip and characteristic geometric designs in an unusual chocolate-colored paint, has usually been interpreted as imported from Cyprus or Southern Palestine (cf. Hennessy 1985). Recent NAA analyses, however, provide strong evidence that the vast majority of the material found in Transjordan was produced by a native industry located in the central southern Jordan Valley (first proposed in McGovern 1997). Only the main conclusions can be presented here, pending a more detailed presentation of the data and statistical argumentation elsewhere.

NAA was carried out on 72 Chocolate-on-White pottery vessels, some of which are unpainted (the so-called White Slip pottery, not to be confused with the Cyproite type of similar name) from a range of Transjordanian sites: Tall Abil al-Khazrat and Pella in the northern Jordan Valley; Katarit as-Samra and Tall Nimmrin in the central Jordan Valley; and Tall al-Fakahar, sites in the Baq'ah Valley, and the "Amman Citadel on the northern and central Transjordanian plateau. Examples from Bayt Shan in Cis-jordan, west of the Jordan River and close to Pella, and Askalebol on the Dead Sea were also included in this study. The NAA results show that three clay types had been used to make this distinctively decorated pottery in standard Syro-Palestinian shapes, including bowls, kraters, jugs, jars, and chalices. One clay type is, in fact, the red loess clay of Southern Palestine, so prevalent in Southern Palestine (above). Only Bayt Shan, type five, five examples, with a white slip that, contrary to standard practice for this class of pottery, had not been burnished. Moreover, only one example was decorated with the common chocolate-and-black decoration; the other four had an unusual chocolate-and-black decoration. Such "bichrome" Chocolate-on-White pottery is attested at Tall al-Ajlil in early LB levels. The single, small example that was cast, which had a chocolate-painted wavy band over an unburnished white slip, belonged to the same chemical group.

Another Chocolate-on-White example, all of which had burned white slips, were chemically closest to a local compositional group for Tall Nimmrin, at the mouth of Wadi Shu'ayb in the central Jordan Valley, which had a substantial settlement throughout the MBA (Flanagan and McCreery 1990). One may propose that at least two clay beds were exploited, based on markedly different levels of calcium for two subgroups. The workshops are yet to be located, and indeed it is still unclear...
el was established on bedrock, accompanied by Chocolate-on-White pottery, and occupation continued down to the end of the LBA. In the Jordan Valley, Karetat as-Samur is another good example of a newly established LBA I site. LBA I sites on the higher ground of the Jordan Valley are of greater variety and larger range.

Larger sites on the northern plateau and in the Jordan Valley — such as Jericho, Pella, Jericho, and Be'er Sheva (McQuitty 1989) — were continuously occupied from MB I into LB I. Indeed, except for the marked presence of Chocolate-on-White pottery, the first appearance of Cyproit import and distinctive Syro-Palestinian pottery types such as the truncated juglet, the material culture of LB I is very close to that of MB IC, and, except for Jericho, major destruction levels appear to be absent. Fewer sites on the central plateau showed this continuity of occupation from MB I into LB I, but it is attested at the 'Amman Citadel and Sahab.

The 'Amarna Letters of the 14th century BC (LB IA), which record Egyptian interactions with Palestinian cities, mention only one Transjordanian site without question — Pella (Smith 1973). What has been interpreted as a palace, which yielded two ivory boxes (including the Lion Box, above), cuneiform tablets and other valuables, had already been built here in the 15th century BC, and continued in use down to the mid-13th century BC, when it appears to have been abandoned (Bourke et al. 1994: 104-10). This palace, which Nicholls describes as the 'Amarna Period proper, was very similar to the LB I Quadratha of central Transjordan (above). The excavators state that it was a multi-storey building, central court surrounded by rooms, including a lavatory and drainage system (Bourke et al. 1994: Figs. 15 and 16). Like the 'Amman Airport and other exemplars, it is oriented north-south, with foundation walls comprised of two lines of boulders. One difference is that the upper walls of the Pella structure were made of mudbrick, while those of central Transjordan appear to have been made entirely of boulders. Egyptian analogues for the Pella structure, such as the Governor's Residence type, do not need to be invoked; this building style is solidly within Transjordanian building traditions.

At Tall al-Fukhur (Strange 1997), what has also been interpreted as a public building, was built on a much more monumental scale than the palace of 'Amarna. It was constructed in LB IB (ca. 1480-1400BC) and remained in use until the end of the LBA when it was destroyed in a massive destruction. Although only part of the structure has thus far been excavated, it appears to stretch some 40m along the southern crest of the tell. It is at least 15m wide, with groups of communicating rooms. Well-cut and dry-laid limestone buildings comprised the 1.5m thick foundations with a mudbrick superstructure. Based on the 0.5 accumulation of mudbrick destruction debris and large oak beams, the building probably had two stories. One main entrance was half excavated: a pillar, again 1 m like that in the Khirbat Umm ad-Danin Qur'abun (above), flanked a staircase of five boulders leading up from a plastered outer courtyard to a broadroom.

The finds from the destruction debris attest to the burnings of the palatial chariots (from the LB IB and LBA IIA periods included a glass female figurine pendant (McCoy 1997), a type which I dealt with in my doctoral dissertation almost 20 years ago (McCoy 1985: 30). This mold-made tour-de-force represents one of the earliest, intricate glass products in the ancient Near East. It is attested by single examples only at sites scattered throughout upper Mesopotamia and Syria (Nazi, Ham, Abu, Ebla, and Alalakh), at several sites west of the Jordan River (Bayt Shan, Qeiyafa, Megiddo, and Lachish), as well as much farther afield at Bogazko! in central Anatolia, on Cyprus, at Mycenae, and in Egypt. The pendant type was likely manufactured and exported from somewhere in upper Mesopotamia. If one needed any better example of the international connections of Tall al-Fukhur, now situated in an unpopulated, relatively barren valley, the glass figurine pendant was it. And this conclusion was borne out by other artifacts: a large wall knoll of blue-green glazed pottery, which matched examples at the LB IB-Ba palace of Nuzi and was probably exported there, a Cypriot millipoke, and several Mycenaean kylikes which were associated with wine-drinking ceremonies in Greece (Wright 1995). NAA of a coiled cooking pot showed that it came from Southern Palestine, whereas most vessels from the larger Tell al-Fukhur were found below the site, or came from sites closer by, such as al-Afluh, west of Bayt Shan in the Jezreel Valley.

What is striking about these Transjordanian "palaces," which were presumably the centers of operation for the kind of princes who were constantly bickering with one another in the 'Amarna Letters, is that very little in the way of architecture or artifacts can be discerned here. Indeed, no palace has been found in them. The Lion Box (above) from the Pella palace, very possibly a "Hyksos" work of art combining elements of Egyptian and Canaanite motifs, is the exception. Otherwise, except for the occasional scarab, which might well have been produced locally within Palestine, or a stone vessel whose material or motifs can be argued to be of Egyptian origin, the overwhelming majority of the finds from these palaces can be explained as native Jordanian productions. Elsewhere in Transjordan, so-called "Hyksos" sites, such as Jericho and Levantina, although it is sometimes relieved by finding Egyptian stone vessels, such as the large group — including heirlooms — that had been amassed in the 'Amman Airport Building, or an unusual hieroglyphic cypres ring, reading Amun-Re in three different directions, in an LB II tomb in the Baq'ah Valley (McCoy 1986: 91.6). The relative lack of Egyptian artifacts in Transjordan during the LBA is brought out by contrasting what has

sels from Southern Palestine at Bayt Shan (above). Whatever its ultimate origins, Chocolate-on-White pottery evidence a lively and centralized economy in LB I Jordan, since the ware must have been mass-produced and was traded to the all the major Jordanian city-states of the period from a limited number of workshops in the Jordan Valley.

Egyptian Encroachments on LB Urban Culture

Returning to the model, presented above, that the primary economic and social influence on MB Transjordan flowed from north to south, a good case can be made that Egypt attempted to take control of and hold key regional and intermediate trade centers during the rest of the millennium — specifically, the LBA. In some ways, this was a counterproductive strategy, since it was costly to carry out military campaigns and maintain permanent bases among highly independent city-states. The Egyptians had pursued a similar strategy in the previous millennium, during EB I, when they built or took over trading posts in Southern Palestine and the Negev, presumably to control trade in wine (above), copper, and other commodities. Over the long term, such heavy-handed tactics tended to undermine local LB economies, which were based on native dynastic and princely monopolies. Nevertheless, these bases were often associated with Ramesses II (Fisher 1979) and later Egyptian Lords. The importance of obtaining more short-lived radiocarbon determinations of carbonized grain, presumably barley, from inside and outside a site at Tall Abi el-Kharras (Fisher forthcoming). Using the highest probability 2-sigma range, the average date of the site is 1537 BC, which falls at the mid-point of the traditional span for LB IA, viz. ca. 1550 to 1480 BC. The relative pottery change is well supported by Egyptian synchronisms and stratigraphic correlations with western Palestinian corparae at Tall al-Ajl, Megiddo and elsewhere, where Chocolate-on-White pottery is often associated with Tall al-Ajl B C Ware.

The absence of obtaining more short-lived radiocarbon determinations from sites here, not just for LB I but for the whole second millennium BC, so as to put MB and LB chronology on a more secure footing and refine it. Need is especially acute in an area such as Jordan, where lacks clear geographic and historical references in contemporary documentary sources and has relatively few artifact types, whether locally made or imported, that are directly correlated to the Egyptian and Mesopotamian chronologies.

Pottery vessels from late MB tombs at Jericho, 15km west of Tall Nimrin on the opposite side of the Jordan River, provide possible prototypes for LB IA Chocolate-on-White ware (cf. Kenyon and Holland 1983: Figs. 169, 6 and 170. 1). The Jericho examples are generally jars that were decorated a dark red paint with geometric motifs — horizontal and wavy bands, dots, and filled triangles — on wheel-burnished white slips. In the context of the broader "Hyksos" trading patterns, the emergence of a native Transjordanian industry might also have been encouraged by the koiné of the MB Lebante Painted Pottery repertoire, and possibly even the immigration of a "Hyksos," as suggested by the Jor-
been found at the Egyptian military garrison of Bayt Shan (James and McGovern 1993). The "Hyksos" of Southern Palestinianhad economic ties with this site in LB IA, as implied by nu-
merous scarabs and Egyptian-type pendants, faience bowls (one with a hieroglyphic inscription on the rim) and Egyptian statuary recovered from Level IX (partially published, see Rowe 1940), the 13th century or LB II B period marked the highpoint of Egyptian influence at the site and in Palestinian affairs generally. This can also be demonstrated by plotting the absolute and relative fre-
quencies of Egyptian-style artifacts, as I did for jewelry pendantstones (McGovern 1985: Ch. 8; whereas the hill coun-
ty of Palestine and the Transjordanian plateau were de-
void of Egyptian-style pendants for the whole LBA, small numbers first made their appearance along the coast and in the main inland valley of the Jezreel during LB IB, the numbers remaining relatively constant in LB IA, until an expansionary upsurge occurred in LB II B.

At Bayt Shan in the 13th century BC, over 250km from the borders of Egypt and in the far northeastern cor-
ner of Palestine, the Level IX town was totally dismantled and leveled; to make way for the military garrison, which was purely Egyptian in concept and construction (for a synopsis of the archaeological and textual evidence, see James and McGovern 1993: I: Ch. 11). A residential sec-
tion of the garrison houses was built about an openpattern of streets, which was very similar to the workmen's vil-
lages at al-'Amarna and Dayr al-Madina in Egypt. The so-called "Commandant's House" stood at the corner of the hall residence with the living room on one side of the building, and the Migdal (Sem., "Fortress"), similar to those built along the Sinai portion of the "Ways of Hor-
s" (Via Asianis) by Sety I in Hellespontine territory. Though Egyptian architecture and the relative fre-
quency of Egyptian pottery and object types to Pal-
estinian styles was the highest that has ever been recorded at a Palestinian site, around the two monumental stele of Sety I and one of Ramses II are particularly important, since they detail Egyptian military activity in the area, in-
cluding the defenses, results of the belligerent nearby city-states of Pella and Hamath.

While Egyptian military officials, architects, and craftsmen were in control of the garrison, the local pop-
ulation largely provided menial labor. During the social strati-
fication, a temple precinct at the center of the tell il-
lustrates how Egyptian and Palestinian popular cultures
and technologies could be combined together. The layout of the temple, which was successfully built and re-

furbished by Sety I, Ramses II and Ramses III, was com-
prised of a lotus-columned inner courtyard, with a stairway leading up to a back altar room. Its layout was al-
most identical to mortuary temples and sanctuaries of the 14th century BC al-'Amarna and 13th century BC Dayr al-
Madinah in Egypt.

Although the temple belongs to an Egyptian archi-
tectural tradition, its products are not identical to those of am.

Kanaanite cult. Dedicated statuette were the most important sources of information about the gods and goddesses who were worshiped here. Thus, one stela shows a seated, bearded figure, who holds a sCEPTer and 'ankh sign. The figure, wearing a jewelry col-
ar and a conical headdress with horns at the front and a pair of long streamers at the back, is approached by two
males, who hold lotus scepters and wear Egyptian wigs. The accompanying hieroglyphic inscription identifies the seated figure as Mekal, "the god, the lord of Bayt Shan," who is invoked by the Egyptians Ammenemhet and Par-
eheb to give "life, prosperity and health." From other Syro-Palestinian and Egyptian representations and in-
scriptive evidence, Mekal, deriving from a Semitic root, was evidently the local equivalent of a principal Pal-
estinian deity, probably 'El or Ba'at, who were identified with most of the pantheon. This is strongly indicated by the fact that, although Egyptian deities are not mentioned as such, the Egyptian accoutrements of the god on a stela of standard Egyptian craftsmanship and organization of Egyptian and Palestinian religious concepts.

Similar evidence on stelae and pendants exists for a fe-
male deity, who was variously identified with Hathor, the
nourishing goddess Memphite, the center goddess of the heart of the dead, and who was also locally known as Amnit. She represents the principal Ca-

panitean goddess, more often called "Ashtarte or Ba'at. The Egyptian equivalent of Amnit was Bint, who was also ideologically merged with the Canaanite fertility goddess, and represented in a technologically innovative fashion. Pottery plaque figurines of the principal Canaanite god-
ness, even molds for making them, were common in the temple and the nearby houses at Bayt Shan, as were coconut figurines. In standard Egyptian fashion, the coconuts were made of molded clay, further decorated with separate slabs and pieces of clay: a modeled head, a flattened slab for the characteristic broad thora of the coconut, and a base slab, which often had an applique of a rope to mark the sail. These were unique in having breasts de-
picted by applied clay petals. This feature points to an am-
agamation of an Egyptian snake goddess with the Ca-

nanite deity. Supporting this interpretation is a hier-
oglyphic plaque which was fabricated like the coconut fig-
urines: rather than being mold-made like all the other ex-
amiples, its torso was a clay slab to which clay pel-

lets were applied as breasts and side rolls of clay as arms.

These and other examples of Egyptian cultural and

technological tradition and its syncretism with native tra-

dition provide important touchstones for assessing de-
velopments in Transjordan. On this basis, Pella probably played as large a role with Egypt as any site. It is the only city-state in Jordan to be mentioned in the topographical lists of Sety I, occurring repeatedly. It is said to have sup-
plied chariot parts in Papyrus Anastasi IV (see Smith 1973: 32), fragments of which were recovered in every LB phase at Bayt Shan. As one example of what might have been received in exchange, a serpentine vase from the palace at Pella, probably an import from Egypt, is nearly identical to an example from Level VII at Bayt Shan, dated to the late 13th century (cf. Bourke et al. 1994: Fig. 7; James and McGovern 1993: II: Fig. 113.2). Yet, as one of the Sety I stelae at Bayt Shan indicates, Pella continued to be a military threat, and the amount of Egyptian or Egyptianizing material from the site pales into insignificance alongside that from Bayt Shan. The nearby site of Tall Abû al-Khazret is yet to yield a single, definite Egyptian import. Additional raids were made by the Egyptians into southern Syria, as attested by the stela set up by Sety I at Tall ash-Shibâl, northeast of Iribid along the Yarmuk River, and one erected by Ramses II in 'Idul, the district northwest of 'Idul and north of the Sea of Gal-
ilee (for references, see Strange, in Press). These forays must not have had any lasting effects, since at Tall al-
Fukhr, the site of major mountainous living, tides were more evid-
te than those with Egypt (above).

Most LB city-states in Transjordan that have been ex-
cavated on a large scale, such as Tall Abû al-Khazret, Tall al-Fukhr, Tall Iribid, Salhab and the "Amûn Citadel," were fortified. Sometimes, as at Pella, the outer wall was constructed in the MBA, and continued in use through the LB III. A small contemporaneous fort was built at Tall al-
Fukhr, and the use of massive builders in cyclopean fashion is comparable to the fortification walls at She-
chem, Iribid, and Pella.

Egyptian Inclusions and Control of LB Southern Jor-
dan?

What still remains a mystery is why the regions of Moab and Edom are apparently mentioned frequently in Egy-
pian texts, and yet have yielded so little in the way of ar-
chaological remains. A convincing case has been made by Kenneth Kitichen (1992) that the Moabite towns of Bu-
tartu, identified as ar-Rabbâh (as derived from Raba Ba-
tora) and 25km south of Wâdi al-Mujib, and Tibnûn, iden-
tified with Dhibân and 5km north of the Wâdi al-Mujib, were captured by Ramses II; Jordanian prisoners were graphically depicted on reliefs in the Kannâr temple. Yet, excavations at Dhibân showed a gap between the end of the EBA and the Iron I period, and only a few sites

south of Wâdi al-Mujib have yielded LB remains.

Even more mystifying, in view of the lack of ar-
chaological remains in Moab and Edom, are two stela,
generally dated to the 13th-12th century BC, which ex-
hibits specific iconography common to the Shbûn or Rujm al-
'Abd stela, and the Bâlîa stela (both conventionally interpreted in Zayadine 1991: Figs. 33-
34; also see Ward and Martin 1964), found some 10km apart, just south of Wâdi al-Mujib. Although the two stelae were not recovered from secure contexts, LB occupation has been reported from Bâlîa. The iconography of the Bâlîa stela is particularly evocative. A disk, which often represented the sun or weather god on pendants, is seen above the right shoulder of the middle figure. Above the latter's left shoulder is a crescent, most likely denoting the moon goddess or main Canaanite female fertility goddess. Thus, the central figure can be interpreted as a Moabite ruler, upon whom authority and well-being are being con-
ferred by the major Canaanite deities, dressed and ad-
orned in standard Egyptian fashion, who stand on either side of him. Unfortunately, the inscription above the figures, although evidently in hieroglyphs, is illegible.

Rameses II also claimed to have "plundered Mount Seir," as did Ramses III. Biblical tradition and con-
temporary Egyptian references, especially that of Pa-
pyrus Anastasi IV, make it clear that Edom and Seir are synonymous terms for a region of southern Jordan that was inhabited by a nomadic people—the thasu—who wayfared the desert and had no permanent settlements in the area today. Why these pharaohs should have taken it upon themselves to raid this seemingly remote, unimportant re-
gion, with little if any permanent settlement according to recent surveys, is difficult to explain.

It might be proposed that the Egyptians were at-
tempting to defend their copper-smelting interests at Tim-
na. The potential for copper mining as well as copper trade through the region. Such explanations, however, are weak, because of the lack of evidence for any large-scale overland trade or any military encroachments that im-
peded operations at Timna. As at Bayt Shan (above), the local people appear to have worked well with their Egy-
pian overlords. Perhaps more plausibly, the Egyptians took over existing trade routes; Timna, their copper 

The LB-Early Iron Age Transitional Period: A New Cultural Constellation
The situation in Jordan vis-à-vis Egypt took another un-

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usual turn in the 12th century BC during which more and more emerging aristocratic transition from LB into the early Iron Age that is much more marked at sites east of the Jordan River than those to the west. Ramesses III and later Ramesses V & IX reasserted their control at key sites in Southern Palestine, such as Dayr al-Balah, and in the Jezreel Valley, at Megiddo and Bat Shan. At the same time, the Egyptians or their emissaries began to encroach on sites in the Jordan Valley. Tall as-Sa’idyyah (Tubb and Dorrell 1993; Tubb 1997) is the parade example. Here, Egyptian imports, including cups of the same types as those found at Bayt Shan and confirmed to be of Nile alluvial clay by NAA at both sites, have been found in tombs and in a pool associated with a casemate defensive wall and what has been described as an Egyptian Governor’s Residence. It should be noted that in the LB II levels at Bayt Shan, all the Egyptian-type pottery and special objects, such as the crocks and slab-made female figurines (above), were made of local clay. Intriguingly, in the LB-early Iron transition period, actual Egyptian imports began to appear at Egyptian-controlled sites, together with relatively more imports from Southern Palestine. Burial customs, influenced by Egyptian tradition, are another point of comparison between Tall as-Sa’idyyah and Bayt Shan. At the latter, many large anthropoid coffins appeared for the first time in transitional tombs of the Northern Cemetery. Most of these were of the so-called naturalistic type, which was well-adapted to the New Kingdom. Others had more “Gustave” types and what might be interpreted as high feathered headdresses, like those of the Sea Peoples on the contemporaneous re- storations of the tombs in Southern Palestine. The coffins of the civilians at the cementary in the western Thbeis, recording their attack on Egypt by land and sea (for an overview of the evidence, see Dothan 1982).

A NAA study (McGovern 1997) has shown that complete coffins of both types were imported to Bayt Shan from the coastal region of Southern Palestine. Corroborating this finding, a coffin lid face of naturalistic type was excavated at Deyr al-Balah, south of Gaza, where many other coffin burials were excavated (Dothan 1979). It seems incredible that such heavy cof- fin, weighing hundreds of pounds, could have been transported across the Mediterranean, probably by boat, and then overland, probably by wagon, through the Jezreel Valley to Bayt Shan, but they evident- ly were. At Tall as-Sa’idyyah (Tubb 1998), we seem to have the poor man’s equivalent to the well-made an- thropoid coffins. Here, bodies were some- times buried in two pits, placed mouth-to-mouth, or sometimes merely covered with amphora or pithekos sherds. Bodies were wound in a cloth that has been identified as linen of an Egyptian weave, and sometimes even covered with bitumen, suggesting that a simplified kind of mum- mification was carried out.

By examining the associated burial goods in the transitional tombs at Bayt Shan and Tall as-Sa’idyyah, an at- tempt can be made to identify the owners or occupants of their graves (see McGovern 1984). Imitations of Mycenaean stirrup jars, made of local clay as es- tablished by NAA, figurines with Aegaean influence, and personal goods of the occupants (see McGovern 1984). Imitations of Mycenaean stirrup jars, made of local clay as established by NAA, figurines with Aegaean influence, and personal goods of the occupants (see McGovern 1984).

Two of the best examples of these are the two jars found at Tall as-Sa’idyyah burials, one of which has been identified as an Egyptian import, and the other as a local imitation. The Egyptian jar is a deep, rounded, barrel-shaped vessel with a flaring neck and a wide mouth. The local imitation is a similar vessel, but with a narrower neck and a slightly flared rim. Both vessels are made of local clay, but the Egyptian jar is much larger and more finely finished. The local imitation is smaller and coarser in texture. The two jars are similar in form, but differ in size and finish, suggesting that they were made for different purposes. The Egyptian jar may have been used for storage, while the local imitation was probably used for drinking.

This type of jar is one of the most important types of goods found in the Late Bronze Age and Early Iron Age grave goods in the region. It is a characteristic type of jar known from many sites in the eastern Mediterranean, and is believed to have been imported from Egypt. The jars are made of a special type of clay that is not found in the local area, and the shape and size of the jars are consistent with those found in Egyptian grave goods. The presence of these jars in the graves at Tall as-Sa’idyyah suggests that the occupants were of high status, and that they had access to imported goods.

The jars at Tall as-Sa’idyyah are also interesting in terms of their relationship to other similar jars found in the region. These jars are found in many different contexts, including burials, domestic sites, and storage pits. They are often found in association with other luxury goods, such as gold and silver vessels, suggesting that they were used as prestige items. The jars at Tall as-Sa’idyyah are similar in form to these other jars, but differ in size and finish, suggesting that they were made for different purposes. The Egyptian jar may have been used for storage, while the local imitation was probably used for drinking.

The presence of these jars in the graves at Tall as-Sa’idyyah suggests that the occupants were of high status, and that they had access to imported goods. This is further supported by the presence of other luxury goods, such as gold and silver vessels, in the graves. The jars are also interesting in terms of their relationship to other similar jars found in the region. These jars are found in many different contexts, including burials, domestic sites, and storage pits. They are often found in association with other luxury goods, such as gold and silver vessels, suggesting that they were used as prestige items. The jars at Tall as-Sa’idyyah are similar in form to these other jars, but differ in size and finish, suggesting that they were made for different purposes. The Egyptian jar may have been used for storage, while the local imitation was probably used for drinking.

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Valley — were also made of a mild steel. Where was the steel jewelry made that has been excava-
ted in central Transjordan? There is no compelling rea-
son for arguing that these artifacts had to be imported. The pottery and other artifacts found together with the steel jewelry, apart from marble slabs from the Medi-
terranean and Red Sea, are of types common enough at
many early Iron Age sites on the plateau and elsewhere
in Palestine.

A scenario that I have developed for the innovation of iron and steel technology in Transjordan, if true, places Jordan right at the cutting edge of a new high-tech age in antiquity (with no pun intended, since it was mainly jew-
elry that was being made). As already mentioned, in the
wake of economic and social dislocations at the end of the
LBA, the urban population apparently dispersed into hir-
territorial areas where alternative subsistence strategies were required. Under these circumstances and especially if the population included dispersed coppersmiths from Wadi Arabah, new ores might have been experimented with and a new technology of iron and steelworking developed.

This process had apparently begun towards the end of the
LBA, since a fragment of an iron ankletbracelet, so ex-
tensively corroded that it could not be determined whether it was carbonized, was recovered from Baq‘ah Cave B2, dated to the 13th century BC.

Hydrothermally altered iron ore deposits, one of the
few large sources in the Levant, are concentrated in the
area north and northwest of Baq‘ah along Wadi ar-Zarq‘ah
and in ‘Ajlûn, at sites such as Jīl‘ād, Dhahart Aby
Thawwab, Tell al-‘Abyad, and Mugharrit al-Wardash.
Preliminary investigation of these sites suggests that smelting operations had begun by the early Iron Age. Sev-
eral of the sites have been identified by the wa-
tered at a higher elevation than the ‘Ajlûn, and prob-
ably received more rainfall in this period, when the
Eastern Mediterranean generally appears to have suffered from a decline in precipitation, and when areas in the
vicinity of the major LB city-states had probably been ex-
tensively deforested. Large oak and conifer tracts exist in these upland regions today, which might well have been similarly wooded in antiquity and capable of providing the fuel needs for the iron/steel industry.

The emergence of a native, Jordanian iron/steel indus-
try in the 13th-12th century BC preceded the con-
solidation of a fully-fledged Philistine culture in Southern
Palestine, which had occurred by the late 12th century BC
at the latest. Thus, the Philistines per se could not have introduced iron/metalworking into Palestine, as implied by biblical tradition. Conceivably, Sea People met-
alsmiths, who were connected with the Egyptian expansion
into the central Jordan Valley during the transition period (above), contributed to the development of the early iron/ steel industry of Transjordan, but until detailed in-

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