6. **Settling the Valley: Agrarian Settlement and Interaction along the Jordan Rift during the Bronze Age**

Steven E. Falconer and Patricia L. Fall
Arizona State University

1. **Introduction**

Perhaps the two most influential interpretive paradigms underlying archaeological studies of early complex society in the Near East focus on the related developments of urbanized society and state-level polities. Indeed, the Levant presents spectacular examples of both the growth and abandonment of agrarian town life through the Bronze Age (c. 3500-1200 BC), followed by the equally discontinuous rise and dissolution of regional states in the Iron Age (c. 1200-586 BC). The considerable archaeological contributions of Gerrit van der Kooij, seen in the excavation of Tell Deir ‘Allā (e.g. Van der Kooij and Kafafi in press), and more recently through the survey and excavations of the “Settling the Steppe” project, offer incomparable illumination of the urban-rural dynamics that lie at the heart of Near Eastern civilization, especially in the Jordan Valley. Our modest tribute to Gerrit sketches a portrait of the agrarian and settlement networks within which larger communities like ancient Deir ‘Allā were integrated to varying degrees through the social discontinuities of the Bronze Age.

One legacy of Leiden University’s long-term research at and around Tell Deir ‘Allā has been a well-honed commitment to integrating and understanding the ties between the physical and social environments of the Jordan Valley (e.g. Van der Kooij 2006). The Rift provides a naturally well-defined ecological setting for assessing lengthy trajectories of agricultural settlement, and associated climatically and culturally induced landscape changes. Many of these shifts were associated with the “secondary products revolution,” and the dedicated production and exchange of marketable agricultural commodities among towns and villages (Sherratt 1981; Fall et al. 2002). The Jordan Valley stands as an environmental setting remarkably well-suited to the study of these changes, for example from barley and grape during drier or non-urbanized intervals to wheat and olive at times of growing town life (e.g. Fall et al. 2002). Fertile soils, perennial springs and a frost-free climatic regime make it a natural greenhouse and, accordingly, a natural setting for population growth and urbanization.

Archaeological study of the Levantine Bronze Age directs much attention to the study of urbanization, often focused on some of the largest aggregated communities along the Mediterranean coastal plain (e.g. Aphek, Ashkelon, Gezer) and the Huleh Basin (Hazor). However, settlement data from the Jordan Valley provide the best illustrations of well-integrated urban-rural hierarchies (Falconer and Savage 1995) and localized “city-state” polities (Savage and Falconer 2003; Falconer and Savage in press) that persist through the Bronze Age (Fig. 1). Current Leiden University settlement studies around Tell Deir ‘Allā concentrate on the Iron Age (Kaptijn et al. 2006), rather than more modestly represented earlier periods, like the Middle Bronze Age. The pioneering explorations of Nelson Glueck (e.g. 1970) first suggested a general decline in settlement during the Middle Bronze Age highpoint of Levantine urbanism. Yet evidence from a spectrum of sites, including Tell Deir ‘Allā, as well as archaeological towns, villages and hamlets in the northern Jordan Valley and on the Dead Sea Plain, illuminate the larger social landscape within which Bronze Age communities like Tell Deir ‘Allā emerged during the development of urbanized society in the Southern Levant.

2. **The Early Bronze Age**

Several excavations reveal Early Bronze II or III towns in the Jordan Valley ranging between four and 15 hectares...
(see Philip 2008) with roughly 1000-4000 inhabitants each (estimated from an ethnographically-derived mean population density of 250 persons/ha; see e.g. Kramer 1982; Falconer 1994). K-means cluster analysis of these settlement locations and their sizes, when integrated with the data of the East Jordan Valley Survey (Ibrahim et al. 1976; 1988), suggest loosely-defined settlement clusters that may correspond to incipient polities (Fig. 2). One cluster incorporates walled towns at Pella and Tell 'Abū al-Kharāz and another links fortified communities at Tell al-Sa‘idiyyeh, Tell Handaquq (N) and Tell Handaquq (S) (Savage and Falconer 2003; Falconer and Savage in press). Farther south, on the Dead Sea Plain, Bab edh-Dhra’ reaches four to five hectares during Early Bronze III, accompanied by an one hectare settlement at Numeira (Rast and Schaub 2003).

During the decades leading up to c. 2300 BC, this patchwork of Early Bronze II-III towns is abandoned completely as part of a pattern of urban implosion throughout the Southern Levant. The pervasiveness of this phenomenon surpasses even that of the Mesopotamian Middle Babylonian collapse (c. 1400-1100 BC; see Adams 1981, 138-42), and perhaps stems from the disintegration of Egyptian state authority during the First Intermediate Period. The most influential syntheses of the ensuing Early Bronze IV period in the southern Levant emphasize excavated evidence from seasonal encampments and cemeteries linked through transhumant movements of sheep/goat pastoralists (e.g. Prag 1974; Dever 1980; 1995). However, a broader perspective based on regional settlement suggests that Early Bronze IV settlement systems may have resembled the decapitated lower elements of Early Bronze Age urbanized systems (Falconer and Savage 1995). The most recent overviews (e.g. Palumbo 2008) highlight a growing array of Early Bronze IV domestic settlements, and intriguingly, the Jordan Rift is home to several of the region's largest Early Bronze IV communities. These settlements (e.g. Tell Abu en-Ni‘aj [N], Tell 'Umm Hammād Gharbi, Bab edh-Dhra'; as well as Khirbet Iskander in the Wadi Wala) rarely exceed three to four hectares in size (with perhaps 1000 inhabitants), with the exception of Tell Iktenu, which reaches 18 hectares on its south tell (Prag 1993).
2.1 Tell Abu en-Ni’aj

While Early Bronze IV settlement patterns tend not to display the settlement sizes or clustering that might indicate polity formation, the Jordan Valley does provide intriguing glimpses of community interaction and a modest settlement hierarchy at work. Tell Abu en-Ni’aj [N], encompassing 2.5 ha (therefore about 600 inhabitants) lies in the northern Jordan Valley at the edge of the ghor (the agricultural terrace of the Jordan Rift) overlooking the zor (the modern Jordan River floodplain) (Fig. 3). Excavations in 1985, 1996 and 2000 uncovered seven stratified phases of mudbrick architecture reaching a total depth of 3.3 m (Falconer et al. 1998; 2001; 2007). Abu en-Ni’aj’s settlement history starts at the very beginning of Early Bronze IV and continues through most of the period (Falconer et al. 2003). Rectilinear mudbrick architecture, sherd-paved streets, large storage bins and a possible olive or grape press, coupled with floral and faunal assemblages dominated by domesticated farm crops and herded animals, clearly portray Tell Abu en-Ni’aj as a long-lived sedentary farming community.

While archaeological theory emphasizes the benefits of political and social integration provided by cities and states, considerably less scholarship considers what to expect in their absence. A null hypothesis for the Levant’s Early Bronze IV period might propose that a society lacking these catalysts for change should be relatively static economically. Contrary to this expectation, Tell Abu en-Ni’aj reveals a number of highly dynamic demographic and economic trends through its lifespan in Early Bronze IV. Village houses became more densely packed and wall alignments shifted to new orientations in the first three phases of occupation (Falconer et al. 2001). A detailed analysis of the Ni’aj architecture and pottery (Czarzasty 2005) infers clear patterns of population growth, as settled space was repeatedly subdivided and house plans became smaller and more densely packed. An estimate of the population growth rate exceeds normal replacement rates, suggesting in-migration to Tell Abu en-Ni’aj from surrounding communities or regions. This interpretation is strengthened by steadily increasing numbers and sizes of cooking and serving vessels from Abu en-Ni’aj’s households.

In addition to population growth, the village at Tell Abu en-Ni’aj also implemented shifts in its economic...
strategy (Falconer et al. 2003). In an era normally interpreted as “pastoralized,” sheep/goat deposition declines through Early Bronze IV, perhaps due to the lack of urban markets for wool. In contrast, pig and cattle evidence increases, suggesting greater household animal management of swine, and increased beef consumption or use of traction animals. The floral evidence suggests more consistent cultivation of barley (rather than wheat) and grape (rather than olive), and the agrarian strategies implemented at Tell Abu en-Ni’aj appear just as fluid as those that characterize village life during Middle Bronze Age urbanism (see below).

Patterns of ceramic exchange further illustrate economic interaction between Tell Abu en-Ni’aj and its neighboring villages. Two independent neutron activation analyses suggest that the villagers of Abu en-Ni’aj traded pottery (and its contents) to the north and south along the Jordan Rift (Jones 1999) and to at least three neighboring villages in the fields and hills to its east (Falconer 1987). Abu en-Ni’aj distributed cups (mostly trickled-painted) and jars to the nearby communities of Tell el-Hayyat, Khirbet Hammeh and Dhahret Umm al-Marar. The results suggest trickle-painted cup manufacture at Abu en-Ni’aj, but also hint at storejar production at Hammeh and Marar, offering a general portrait of active and highly diversified ceramic exchange in the northern Jordan Valley despite the absence of towns (Falconer 1987).

2.2 DHAHRET UMM AL-MARAR

Excavations at Dhahret Umm al-Marar provide a glimpse of one smaller Early Bronze IV community possibly linked in a settlement network with Tell Abu en-Ni’aj. Umm al-Marar lies approximately seven kilometers to the southeast of Abu en-Ni’aj atop a limestone hill at the interface between the Jordan Valley lowlands and the Transjordanian escarpment to the east (Falconer et al. 1998). A spring emerges from the adjacent foothills and flows along the southeastern foot of the hill 40 meters below its summit. Thus, Umm al-Marar’s inhabitants had a commanding view of the surrounding landscape, as well as access to fertile agricultural land and water. Early Bronze IV pottery covers 3.3 ha on the hilltop and its slopes, while house foundations are visible over an one ha area within a rectangular enclosure wall.

Excavation of relatively shallow sediments (less than one m) exposed sherd pavements, stone house foundations, and burned daub and brick fragments indicative of stone-founded mudbrick Early Bronze IV domestic architecture. One house revealed a remarkable in situ pottery assemblage featuring a complete churn with lug handles and the bases of approximately 25-30 flat bottomed pots whose upper sections were sliced off by plowing. This floor assemblage includes at least six cups, a double-handled bowl, a holemouth cook pot,
a strap handled juglet, and numerous storage jars clearly representing a full service domestic collection. The limited faunal assemblage mirrors that of Tell Abu en-Ni’aj, with a majority of sheep/goat bones and lesser amounts of pig and cattle. Thus, Dhahret Umm al-Marar represents another in a growing body of sedentary agrarian communities that populated the Early Bronze IV landscape.

As Palumbo notes, the Early Bronze IV landscape incorporated a variety of fortified and unfortified settlements, including some in naturally defensible positions, often in close proximity (2001, 242). He proposes that Umm al-Marar and the potentially fortified sites of Jebel el-Reheil, Khirbet Umm Rujm, and er-Reseifeh formed a defensive border between people dwelling in fertile agricultural areas of the Jordan Valley and those living in arid lands to the east (Palumbo 2001, 241). The walled community at Umm al-Marar served localized defensive needs in the northern Jordan Valley at the end of Early Bronze IV, perhaps as part of a broader regional matrix of walled and unwalled villages and hamlets.

3. THE MIDDLE BRONZE AGE

While the Jordan Valley features only a handful of excavated Middle Bronze Age towns (see Falconer 2008), incorporation of settlement data from the East Jordan Valley Survey permits inference of well-defined settlement clusters in the vicinity of Tell Deir ‘Allā in the central Jordan Valley, and around Pella and Tell ’Abū al-Kharāz in the north (Falconer and Savage 2009). Excavation of an impressive mudbrick town wall at the southeastern foot of the tell (Van der Kooij 2004) makes Tell Deir ‘Allā the logical focal settlement for a possible Middle Bronze Age polity in the central valley.

In the north, the limited Middle Bronze Age exposures at Pella and Tell ’Abū al-Kharāz indicate sizeable fortified communities of about eight and 12 hectares, respectively, with populations of 2000-3000 people. The Jezreel Valley readily links the Jordan Valley with the Mediterranean, and their juncture frames a settlement cluster comprised of a large variety of towns, villages and hamlets (Falconer and Savage 2009). The connections between these communities emerge on a number of fronts, including rural agricultural strategies at the hamlet of Tell el-Hayyat, and ceramic manufacture at Hayyat and Pella, which exemplify urban-rural interactions during the highpoint of town life in the Middle Bronze Age.

Fig. 4. Tell el-Hayyat, fall 1985, as photographed from Tell Abu en-Ni'aj, facing northeast. Village of Meshara in background, Tell el-Husn in far background to right. (Photo by K. Scholz)
3.1 Tell el-Hayyat and Pella

Tell el-Hayyat represents a diminutive (0.5 ha) farming hamlet of about 100-150 inhabitants at the lower end of the Middle Bronze Age settlement hierarchy (Falconer and Fall 2007). Located seven km southwest of Pella, Hayyat is a fitting locale to illustrate the rural component of Middle Bronze Age urban-rural interactions (Fig. 4). Six stratified phases of mudbrick architecture provide floral evidence of a fundamental shift from an Early Bronze IV emphasis on barley and grape cultivation to Middle Bronze Age wheat and olive (Fall et al. 1998; Falconer et al. 2003, figs 7 and 8). This change correlates well with climate change scenarios suggesting increased moisture in the Middle Bronze Age, and with normative expectations of villages as suppliers of raw foodstuffs to larger towns and cities.

Not surprisingly, the vast majority of identifiable animal bones excavated from Tell el-Hayyat represent sheep and goat. Perhaps more counterintuitively, the relative frequency of these taxa continues the relative decline seen earlier through Early Bronze IV at Tell Abu en-Ni’aj, while sheep:goat ratios show steady increases at both sites (Falconer et al. 2003, fig. 6 and table 2). In contrast, the other two major domesticated animals display sharp departures from the patterns at Abu en-Ni’aj: pig bone frequencies rise sharply, while cattle show an equally pronounced downward trend. Rising sheep bone deposition suggests increasingly market oriented herd management, for example for wool production. The pig evidence suggests a contrary trend that would have permitted more autonomous, household-based husbandry. In concert, these data suggest that, in some cases (sheep/goat), long-term animal management strategies were not necessarily triggered by Middle Bronze Age urbanization, but may stretch through both urban collapse and rejuvenation. In other cases (e.g. pig) Hayyat’s Middle Bronze Age trends represent a distinct departure from those of Early Bronze IV and are not symptomatic of increased market-oriented management.

Likewise, chemical characterization studies of pottery manufacture in the Jordan Valley suggest, expectedly, that by the end of the Middle Bronze Age Pella may have been a central producer of Chocolate-on-White ware to other towns and to villages like Tell el-Hayyat (e.g. Knapp 1993). More unexpectedly, the remains of a pottery kiln and ceramic manufacturing debris at Tell el-Hayyat (Falconer 1987; Falconer and Fall 2007) document production of a variety of vessel types for both rural consumption and urban marketing. Thus, the evidence from settlement networks in the Jordan Valley predictably suggests rural supply of marketable raw materials (e.g. olive oil, wool) from the agrarian countryside to potential market towns and some manufactured goods (e.g. fine ware pottery) from towns to villages. However, this simple reciprocal relationship is balanced by unmistakable signs of rural economic autonomy (e.g. accentuated pig husbandry and diversified pottery manufacture). Explorations on the Dead Sea Plain reveal further elements of Middle Bronze Age settlement and land use that rarely are factored into settlement network studies.

Fig. 5. Handle-less jar with series of ibex figures impressed around its shoulder, excavated from Zahrat adh-Dhra' 1 in winter 1999/2000
3.2 The Dead Sea Plain

Discovery of the Middle Bronze Age settlement of Zahrat adh-Dhra' 1 on the hyper-arid Dead Sea Plain revealed an unorthodox example of an agrarian community on the fringes of urbanized Levantine society. Here the visible remains of more than 25 rectilinear, semi-subterranean stone-built structures describe a series of farming households spread sparsely along a 6 ha spur between two deeply-incised wadis. These intermittent watercourses drain rain and spring waters from the mountains of southern Jordan into the Wadi Kerak and, eventually, the Dead Sea (Edwards et al. 2001; 2002; Fall et al. 2007). Several lines of evidence indicate multiple, relatively brief occupation episodes from late Middle Bronze IIA into Middle Bronze IIB (Edwards et al. 2002; Berelov 2006). The pottery features idiosyncratic handle-less jars (Fig. 5), and heavily mended and curated cooking pots, symptomatic of manufacture elsewhere and limited access to new vessels. Floral assemblages include a broad array of annual cereals (*i.e.* wheat and barley) and perennial orchard taxa (*e.g.* grape and fig, with the notable absence of olive), while the identifiable bone assemblage is dominated by sheep/goat (Edwards et al. 2002). Zahrat adh-Dhra' 1 emerges as a dedicated, but only intermittently occupied farming community; an end of the line outpost environmentally and socially far removed from the region’s growing Middle Bronze Age towns.

Nonetheless, Zahrat adh-Dhra' 1 appears to be associated with an extensive ritual landscape of more than 50 cairn tombs (Fig. 6) and monumental features spread over a vast area from the mountains of Kerak to the western edge of the Plain of Dhra' south of the Wadi Kerak (Edwards et al. 2004). Limited surface material culture frustrates unambiguous dating of these features, but striking similarities between previously published ceramics, more recently sampled surface sherds and the cooking pots of Zahrat adh-Dhra' 1 suggest use during the Middle Bronze Age. Perhaps most provocatively among our evidence from the Jordan Rift, the Middle Bronze Age exhibits a wide range of settlement types and modes of interaction, illustrating the varied economic and ritual connections between communities that characterize early urbanized societies.

Fig. 6. Cairn tomb on Dead Sea Plain south of Zahrat adh-Dhra' 1 (Photo by S. Falconer)
4. The Late Bronze Age

By the latter half of the second millennium BC the Southern Levant offers archival data to augment the archaeological record, especially pertaining to the emergence of a patchwork of formal “city-state” polities. In particular, the Amarna Letters give voice to the contentious, Balkanized political landscape of the Late Bronze Age. These texts, primarily correspondence from petty Canaanite rulers to the pharaohs Amenophis III and Amenophis IV (Akhenaten), allude to a checkerboard of small polities across the Levantine landscape, each maneuvering for the favors of the Egyptian crown (Moran 1992). A series of critical studies infer 20-30 such polities and K-means cluster analysis concurs with the locations of most of these polities by suggesting 24 settlement clusters or potential polities during the Late Bronze Age (Savage and Falconer 2003). Among these clusters, once again two are located in the Jordan Valley in the vicinities of Tell Deir ‘Allā and Pella/Tell ‘Abū al-Kharāz. Although the Amarna Letters refer explicitly only to larger towns, subordinate villages would have comprised the majority of the polities’ constituent communities.

The ties between towns and villages would have taken a variety of forms, such as those reflected archaeologically among the array of Middle Bronze Age settlement types along the Jordan Rift. For example, a shared ritual tradition is apparent in the similar expressions of institutionalized religion found in agrarian communities, large and small alike. Late Bronze Age temples found at Tell Deir ‘Allā (Franken 1992; Van der Kooij 1993), Pella (Bourke et al. 2003) and Tell ‘Abū al-Kharāz (Fischer 2006) may conform to a common architectural tradition and presumably a common set of ritual prescriptions, reflected in the Migdal temples excavated at Tell el-Hayyat (Magness-Gardiner and Falconer 1994; Falconer and Fall 2007). Once again we are reminded of the cultural ties that must have held the varied Bronze Age communities of the Jordan Valley together, during both urban heydays and nadirs.

5. Conclusion

This brief overview of agrarian settlement and economic systems along the Jordan Valley finds much inspiration in the work of Gerrit van der Kooij as part of the larger tradition of Leiden University research originally focused on Tell Deir ‘Allā. Today this tradition provides expanded insights on an ever-widening set of questions surrounding the development of agrarian society at and around the aggregated and often fortified towns that characterized early civilization in the Southern Levant. By broadening the research agenda, Gerrit and his colleagues have made it ever more possible for the archaeological community to ask not only how cities and states arose, but to consider an elaborated set of more nuanced questions regarding how those cities and states interacted with their natural and cultural environments (see Falconer and Redman 2009). In this spirit we may consider how “settling the valley” during the Bronze Age necessarily involved ever-shifting interrelations between towns and villages, agrarian and ritual landscapes, sedentary and not-so-sedentary populations. It is for this broadened perspective that we recognize Gerrit and the Leiden University tradition, and with it offer our sincere appreciation.

Acknowledgements

This celebration of Gerrit van der Kooij’s career provides us with an ideal opportunity to offer Gerrit and Leiden University our thanks for their support and encouragement of our research in the Jordan Valley between 1982 and 2002. We benefited likewise from the support and collaboration of the Department of Antiquities, Hashemite Kingdom of Jordan and Directors-General Drs. Adnan Hadidi, Ghazi Bisheh and Fawaz al-Khraysheh. We benefited greatly from the support and cooperation of the American Center of Oriental Research and Directors Drs. David McCreery, Bert DeVries and Pierre Bikai. We are particularly grateful for the collegiality and friendship that has grown from our extended stays at the Deir ‘Allā dighouse, our home away from home in Jordan. We offer our special thanks to Ahmed Faris Joudeh, Umm Salem, Fatmeh, Muhammad Darwish and all our friends in Deir ‘Allā who have offered their kindness and hospitality so abundantly. We remember fondly Muhammad Jumrah, Haj Faris, and the Jericho men “Sheik” Sadek Abdullah, Ali “Abu Said” Abd al-Rusool and Khamis Fahid. Ever gentlemen, their contributions brought joy to our research in Jordan.
BIBLIOGRAPHY


