NOMADS, TRIBES, AND THE STATE IN THE ANCIENT NEAR EAST

CROSS-DISCIPLINARY PERSPECTIVES

edited by

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Front: Semitic tribe in traditional costume and Egyptians. Egyptian painting. 19th century B.C.E. Mural from the tomb of Beni-Hassan. Photo credit: Erich Lessing / Art Resource, NY. Kunsthistorisches Museum, Vienna, Austria

Back: Figure (on right) with open cloak. Rock art from the site of Uan Amil, Libya. Figure 3.5 in this volume. Photo by Robert Ritner

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PASTORAL NOMADS AND IRON AGE METAL PRODUCTION IN ANCIENT EDOM

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INTRODUCTION

Most scholars working on the problem of the archaeology and history of Iron Age Edom, its heartland being in present-day southern Jordan, are in agreement that a kind of "nomadic imperative" has operated in the evolution of complex societies in this region since the second millennium B.C. until the early twentieth century A.D. (Bienkowski 1992; Bienkowski and van der Steen 2001; Kitchen 1992; Knauf-Belleri 1995; LaBianca 1999; LaBianca and Younker 1995; Levy 2002; Levy 2004; MacDonald 2000; Porter 2004). This means that there is general recognition that during the course of the past three millennia, the socioeconomic structure of nomadism has provided an important, if not special, adaptive advantage to life in this semi-arid and arid region of the southern Levant. However, there is a tendency among these researchers to disagree about the social evolutionary trajectory that the Iron Age nomadic communities of this region, generally referred to as "Edomites," took to achieve increasingly complex levels of social organization to the tipping point of being recognized in historical sources as a "kingdom" or in anthropological circles as an archaic state (cf. Feinman and Marcus 1998). In this paper, I explore three interrelated anthropological processes in conjunction with the most recent Iron Age archaeological fieldwork in southern Jordan to help bring the scholarly community into closer agreement on the role of nomadism in the formation of complex societies in the arid zone of Edom. These models include:

1) Ethnogenesis rooted in the works of G. Emberling (Emberling 1997; Emberling and Yoffee 1999), A. Faust (Faust 2006), myself (Levy and Holl 2002), and others.
2) Political ecology where access to natural resources plays an important role in structuring the political and economic life of societies. The political ecology model was developed by anthropologists such as J. Cole and E. R. Wolf (Cole and Wolf 1999) based on the earlier cultural ecology model of J. Steward (Steward 1968), R. Rappaport (Rappaport 1969), and others where the material conditions of society, especially how food and other basic resources are procured, help structure society. The political ecology model has evolved further through application in other fields including political science and geography.
3) What we refer to here as an "oscillating tribal segmentary social system" model. The latter model builds on the work of R. Tapper (Tapper 1990), T. Earle (Earle 1991a; Earle 1991b; Earle 1987), M. Sahlins (Sahlins 1968), and others. This multivariate model used to explain the rise of social complexity in Iron Age Edom is illustrated in figure 9.1.

NOMADIC CONTEXT

In his magisterial synthesis, *Nomads and the Outside World* (Khazanov 1994: 274), when considering nomads and their emergence as pre-industrial "nomadic states" in the Near East, Anatoly Khazanov says "It is indicative that the first states in pre-Islamic Arabia primarily emerged on the peripheries of the peninsula where nomads were the immediate neighbours of richer and more developed countries. Amongst these states were those of the Kidarites, the Nabateans, the Kindites, the Himyarites and the Lakmids." While the nomadic states alluded to by Khazanov emerged mostly in the Classical and Byzantine periods, this observation raises two important issues concerning the role of nomads in the evolution of complex societies during the Iron Age (ca. 1200–500 B.C.) in Arabia's northwestern neighboring area — the southern Levant. First, is the notion of nomadic societies playing an active role in secondary state formation along the periphery of the Arabian Peninsula from at least the fourth century B.C. and hence a cyclical process of "nomadic state" formation in the arid zones of the ancient Near East. And second, is the distinction of "pre-Islamic Arabia" and the implied role of Islam in later state formation in the region. While the rich ethnographic and historical record of the Middle East can and should serve as a source of analogy in building models of prehistory and ancient history, it is important to beware of the complexities of using ethnographic analogy (including ethnoarchaeological and ethnohistorical sources) in attempting understand historical processes that occurred thousands of years ago. As I. Hodder (Hodder 1982: 12) suggests, the use of analogy can be dangerous when scholars assume a "deterministic uniformitarianism" — where archaeologists assume that societies and cultures similar in some aspects are uniformly similar in all other aspects. To help alleviate the abuse of analogy in archaeological research, I suggest a four-tier model of analogy in archaeology that includes: (1) simple direct analogy, (2) "cautionary tales," (3) processual analogy, and (4) cognitive analogy (see Holl and Levy 1993). Simple direct analogies deal with site-formation processes, "action" or "experimental archaeology." "Cautionary tales" are case studies that refute archaeological claims by showing the variation of interpretations offered by ethnoarchaeological and ethnohistorical research. Processual analogies stress the dynamic relationship between social and economic aspects of culture and the environment as the foundation for understanding the processes of culture change. "Cognitive analogies" are an alternative to materialist processual analogy and look to ideology as an active organization force in societies that result in symbolic ethnoarchaeological research that runs the risk of cultural relativism that cannot be directly applied to ancient cultures (Hodder 1982; Miller and Tilley 1984). For ancient Edom, P. Bienkowski and E. van der Steen (Bienkowski and van der Steen 2001) have presented very original research that uses ethnohistorical data concerning the local nineteenth- and early twentieth-century A.D. Bedouin nomadic communities of Transjordan and Arabia to reconstruct the nature of ancient Iron Age society in Edom. Although not stated explicitly, they attempt to cull the following processual analogies to transcend their ethnographic case study (ibid., p. 35): (1) territory and movement, (2) trade, (3) interaction with a gateway town, (4) relationship to central government, and (5) relationship to an imperial power. However, the veil of assumed civilization core-dominance theories (Frank and Gills 1996; Wallerstein 1974) covers the Iron Age archaeological data as interpreted by this ethnohistorically informed model. It assumes that the Edomite "state" emerged under the influence of a (singular) gateway town, a deterministic relationship with a central government, as well as an imperial power.

In this paper, Iron Age state formation in one of the southern Levant's most peripheral regions — Edom, which borders the northwestern Arabian Peninsula — I examine data from Iron

Age Edom from the interdisciplinary perspective of archaeology, history, and anthropology in the context of the multivariate model noted above (fig. 9.1). Earlier interpretations of the rise of social complexity and the Iron Age "state" in Edom have assumed this occurred under the direct influence of the Assyrian empire in the seventh and eighth centuries B.C. (Bennett 1992; Bennett and Bienkowski 1995; Bienkowski 2000; Bienkowski 2001; Bienkowski and van der Steen 2001; Crowell 2004; Porter 2004; Whiting 2007). However, as shown by G. Stein (Stein 1999: 16), core civilization dominance models are inherently weak since they minimize the roles of polities of social groups on the periphery of these core regions because they assume consistent core dominance, core control over an asymmetric exchange system, and the causal primacy of long-distance interaction in structuring the political economy on the periphery. Accordingly, these assumptions "remove or minimize the roles of polities or social groups in the periphery, local production and local exchange, and internal dynamics of developmental change." To date, the discussions of the rise of Iron Age complex societies in Edom have been presented mostly based on a number of assumptions that force the archaeological data into models that determine the trajectory that led nomadic peoples in Edom to evolve into increasingly complex social formations during the Iron Age sequence as dependent on Assyrian core civilization. Some of these assumptions include the following:

1) A late date for the beginning of the Iron Age in Edom, during the seventh and early eighth centuries B.C.
2) The centrality of seventh- and eighth-century Assyrian core civilization dominance in the promotion of nomad clients in Edom into a small dependent state on the periphery of Assyria whose success depended on paying tribute to the core civilization.
3) Over-reliance on nineteenth- and twentieth-century ethnographic data as the main analogical source for cultural model-building and examination of the Iron Age archaeological record of Edom that are also grounded in core civilization dominance (Ottoman and British) on the south Levantine periphery.

In this paper, rather than begin with assumptions concerning the development of Iron Age societies in Edom, we start with an examination of the environmental context of Edom and the Iron Age archaeological record of the region based on the most recent archaeological fieldwork. By working from the archaeological data, it should be possible to discover various material correlates for social organization and production that existed in Iron Age Edom and then examine these patterns in light of the historical record and anthropological models concerning local south Levantine nomad ethnographic research.

SOCIAL COLLAPSE AT THE END OF THE LATE BRONZE AGE: ENVIRONMENTAL AND SOCIAL CONTEXT TO THE RISE OF COMPLEX LEVANTINE IRON AGE SOCIETIES

At the end of the second millennium B.C. (Late Bronze IIb period), the core civilizations of the eastern Mediterranean underwent a social and environmental crisis that led to their collapse (Chew 2001). The major civilization collapse included the Mycenaeans on mainland Greece (Tainter 2006; van Andel, Zangger, and Demitrack 1990; Wright 1968), the Hittites in Anatolia (Drews 1993), and a short crisis in Egypt at the end of the thirteenth century that brought the Nineteenth Dynasty to an end (Mazar 1992: 288) and ultimately brought an end to the Egyptian New Kingdom. One of the results of the collapse of these empires was the

disruption of trade around the eastern Mediterranean, with the island of Cyprus and its highly successful Late Bronze metal industry being decimated. As is shown below, the interruption of the Cypriot copper trade along with poorer climatic conditions helped set in place a number of opportunities for sociopolitical development for the local peoples of the southern Levant.

The core area of ancient Edom extends in the north from the Wadi al-Hasa, along the Wadi Arabah on the west, the desert plateau on the east, and the Wadi Hisma in the south which borders the Hijaz Desert of the Arabian Peninsula. During some phases of occupation during the Iron Age, the area of Edom may have extended westward across the Wadi Arabah into the region that makes up part of the southern Negev Desert (Royal Jordanian Geographic Centre 2001; Rainey and Notley 2006). The core area of Edom includes approximately 12,000 sq. km with four major phytogeographic zones including: (1) a narrow band (ca. 20 × 110 km, or 2,200 sq. km) of Mediterranean vegetation that receives over 450 mm of average annual rainfall (AAR) and 800 plant species; (2) a sinuous semi-arid band (ca. 45 × 170 km, or 5,450 sq. km) of Irano-Turano vegetation that engulfs the limited ridge of Mediterranean environment where there are approximately 250–450 mm AAR and approximately 300 plant species; (3) the Saharo-Arabian desert zone that includes ca. 4,350 sq. km of territory characterized by 150–24 mm AAR and some 300 plant species; and (4) restricted areas of Sudanian vegetation composed mostly of Acacia trees and other thorn species, dwarf shrubs, and African grasses (Danin 1983); the Sudanian environment is found in pseudo-savanna in wadi beds, cliffs and rock formations, oases, and in the Dead Sea Rift, as well as a variety of secondary habitats outside the rift (Shmida and Aronson 1986). In general, these phytogeographic zones in Edom constitute two main geomorphologic units: the highlands dominated by the semi-arid and Mediterranean zones, and the lowlands that consist primarily of Saharo-Arabian and Sudanian vegetation. In examining the impact of the environment on human occupation, it is important to review the paleoenvironmental evidence for the Late Bronze–Iron Age for any evidence of climatic change and its influence on culture change at this time.

In a recent synthesis of south Levantine paleoenvironmental data, Arlene Rosen (Rosen 2007: 42–43) suggests that it is significant that the social and political events surrounding the development of the first secondary states in the southern Levant during the Iron Age occurred when rainfall conditions seem to have been drier than those at present. In addition to the sociopolitical opportunities due to Late Bronze Age civilization collapse in the eastern Mediterranean, poor climatic conditions also set in at the end of the Late Bronze Age (Late Bronze IIb, ca. 1300–1200 B.C.) that may have contributed to the collapse of the major eastern Mediterranean civilizations at this time. Thus, Iron Age complex societies emerged and crystallized in Israel, Philistia, Ammon, Moab, Edom, and other regions under a rainfall regime that was even less beneficial for dry farming than that of today evidenced in speleotherm data (Bar-Matthews and Ayalon 2004), paleo-limnology studies (Enzel et al. 2003), geomorphology (Rosen 1986), and other paleoenvironmental datasets. The net impression is that climatic conditions were drier than today. As Rosen (ibid., p. 143) points out, during the Iron Age the southern Levantine societies had to contend with feeding increasingly large populations. If the Chalcolithic period (ca. 4500–3600 B.C.) represents the first "population explosion" in the southern Levant, the Iron Age is the second major growth spurt in human population in the region. To cope with the poorer climatic conditions, a wide range of new agro-technologies were employed, from the adoption of widespread agricultural terracing and cistern construction in the highlands of Canaan (Hopkins 1985; Hopkins 1993) to the adoption of innovative systems of production and trade in Edom. As suggested here, we need to search for a multivariate model that takes into account social, political, and environmental variables

to explain the rise of Early Iron Age complex societies in the southern Levant in general and for Edom in particular. In summary, the collapse of Late Bronze Age civilizations in the eastern Mediterranean may represent a unique situation in the history of the region. Not just one major power declined, whose place was quickly filled by another ancient "superpower," but rather, at the end of the thirteenth century B.C. there was a complete disruption of all core-civilization authority in the eastern Mediterranean that led to a power vacuum that the region had not witnessed since the formative prehistoric periods when the first chiefdoms emerged during the late fifth millennium B.C. (Levy 2006; Levy 2007). This paper does not attempt to investigate the reasons Late Bronze Age civilizations in the eastern Mediterranean collapsed, as the notion of societal collapse is a study in its own right (Burton 2004; Diamond 2005; Tainter 1988; Yoffee and Cowgill 1988). As shown by the paleoenvironmental data discussed here, the socioeconomic collapse of Late Bronze Age civilizations was also accompanied by a general decrease in rainfall and deterioration of the climatic conditions that required new agro-technology strategies, and as is suggested here, new social organizations to cope with these social opportunities and environmental constraints. The power vacuum enabled new ethnic groups to converge on the southern Levant (modern Israel, Palestine, Jordan, southern Lebanon, Syria, and the Sinai Peninsula) such as the Sea Peoples (Stager 1985a; Stager 2003) and nomadic tribes from the Arabian Peninsula and perhaps other neighboring regions.

THE IRON AGE ARCHAEOLOGICAL CONTEXT IN EDOM

Recent large-scale Iron Age archaeological research in Edom has focused primarily in the lowland zone, especially in the copper-ore-rich Faynan district. The recent research provides new archaeological and radiometric dating evidence that demonstrates that the Iron Age history of Edom extends much earlier than previous researchers assumed. The new data are important because they situate the Iron Age history of the lowlands of Edom in the late eleventh through ninth centuries B.C. — approximately 300 years earlier than previous researchers have assumed (Bienkowski and van der Steen 2001; Dever 2003; Porter 2004). While not denying an important Late Iron Age (sixth–eighth centuries B.C.) Edomite archaeological landscape identified by earlier researchers at sites on the highland plateau — such as Busayra (thought to be the capital of biblical Edom; Balla and Bienkowski 2002), Tawilan (Bennett and Bienkowski 1995), Umm al-Biyara (Bennett 1966a; Bennett 1966b), and other sites (Hart 1987; Hart 1989) — the new data effectively remove the assumption that the beginning of Edomite state formation was a result of some kind of vassal relationship with Assyrian core civilization from the search for the emergence of complex society in Iron Age Edom. It is important to summarize these new archaeological data so that the alternative multivariate model noted above can be implemented.

Since 2002, the University of California, San Diego (UCSD), and the Department of Antiquities of Jordan (DOAJ) have carried out five major campaigns ending in 2007 that focused on Iron Age problems. The aim of the UCSD-DOAJ Iron Age research in Faynan has been to complete the first phase of a deep-time study of the role of mining and metallurgy on the evolution of societies from the Pre-Pottery Neolithic B period (ca. 7500–6,000 B.C.), characterized by autonomous village settlement to the Iron Age (ca. 1200–500 B.C.) when the first historic state-level societies emerged in the region. Earlier non-systematic archaeological research was carried out in the lowlands of Edom by A. Musil (Musil 1907), G. S. Blake, N. Glueck (Glueck 1935; Glueck 1938; Glueck 1940), F. Frank (Frank 1934), R. G. Head, G. Horsfield, and D. Kirkbride (Albright 1934: 16). Large prehistoric sites were recorded

near the western entrance to the Faynan district along the Wadi Fidan by T. Raikes (Raikes 1980) in the late 1970s. In the 1980s and early 1990s, the German Mining Museum, under A. Hauptmann (Hauptmann 2000; Hauptmann 2007), carried out a number of archaeometallurgical surveys and test excavations in the Faynan district. Working in northern Edom, B. MacDonald (MacDonald and Amr 1992) systematically surveyed many of the wadi segments that drain the highlands of Edom and debouch into the Wadi Arabah (wadis Numeira, Hasa, Matsus, Umm Jufna, Feifa, Umruq, Khanazir, el-Tilah, el-Dahal, al-Hassiya, al-Guwayb, and Wadi Fidan). Working in the center of the Faynan district along the Wadi Faynan, G. Barker, D. Gilbertson, and D. Mattingly carried out a landscape survey that retrieved Iron Age material related to a general study of archaeology and desertification in the region (Barker 2001; Barker et al. 1998; Barker et al. 1999; Barker et al. 1997; Barker et al. 2008). However, the UCSD-DOAJ Edom Lowlands Project represents the first large-scale interdisciplinary research project to focus specifically on the Iron Age landscape of this part of the southern Levant accompanied by large-scale excavations and surveys.

The first systematic full-coverage pedestrian survey carried out by the UCSD team was conducted in 1998 along the Wadi Fidan (Levy et al. 2001). In terms of the twenty-four Iron Age sites recorded, at the time of the survey it was not possible to distinguish any chronological sub-phasing as no stratified excavations had taken place in the lowland region. Thus, surface sherds collected from sites were dated to the "Iron I–II" period. The most significant observation concerning the Iron Age settlement pattern along the Wadi Fidan (ca. 500 m on both sides of the drainage) was the paucity of agricultural installations (one) and settlements (one), and the large number of cemeteries (seven) and metallurgical processing sites (four). Of the metallurgical sites, we should also add an eighth site to this tally because the 2007 excavations at the site of Khirbet Hamra Ifdan (Levy et al. 2002) showed that most of the massive black slag mounds visible on the site surface date to the Iron Age and not the Early Bronze Age.

The UCSD-DOAJ surveys in the Edom lowlands indicate, as noted long ago by Nelson Glueck (1940), that there were two major copper-smelting sites in the region — the largest center being Khirbet en-Nahas (KEN, ca. 10 ha; fig. 9.4) on the Wadi al-Guwayb, a secondary center at Khirbet al-Jariyeh (KAJ, ca. 3 ha; fig. 9.5), and a number of smaller sites at Khirbet Hamra Ifdan on the Wadi Fidan (Levy et al. 2002) and other isolated sites along the main Wadi Faynan drainage and secondary wadis in the area first identified by the German Mining Museum (Hauptmann 2000; 2007). There are also several small defensive "watch tower" (Rujm Hamra Ifdan) and "caravanserai" sites (Khirbet Hamra Ifdan), as well as tent encampments dating to the Iron Age in the lowlands, but none of these reflect permanent settlement.

While Khirbet en-Nahas and Khirbet al-Jariyeh have widespread stone-built architecture visible on the surface (figs. 9.4–5), preliminary studies of the faunal assemblages from the UCSD-DOAJ excavations at Khirbet en-Nahas (Levy et al. 2005) and Khirbet al-Jariyeh do not show evidence of year-round occupation at these metal production sites (Muniz and Levy n.d.). This is in sharp contrast to Pre-Pottery Neolithic sites in the region such as Tel Tifdan (Twiss) and the Early Bronze III metal production manufactory at Khirbet Hamra Ifdan (Muniz 2006) that show strong evidence of year-round occupation. In summarizing the Iron Age settlement pattern data for the lowlands of Edom there a number of large-scale metal production sites, numerous mines, campsites (Homan 2002), smaller sites with a variety of functions (figs. 9.2–3), and a substantial number of cemeteries.

The most recent 2006 excavations the KEN metal-production center have revealed, for the first time, industrial-scale metal production in the tenth and ninth centuries B.C. This has been demonstrated in Area M at the site where an approximately 6 m deep section through industrial slag has been dated with twenty new high-precision radiocarbon dates processed at the Oxford Radiocarbon Accelerator Lab. Approximately 3 m of tenth-century B.C. and 3 m of ninth-century B.C. industrial-scale production were recorded. This was published recently in the Proceedings of the National Academy of Science (Levy et al. 2008). Following C. Costin's (Costin 1991) models of craft production and society, the mode of copper production indicated by these data from KEN is a clear indicator that Iron Age IIa metal production in Faynan was organized by a complex society during this approximately 200-year period. Recent Iron Age ceramic analysis at KEN (Smith and Levy 2008) demonstrates that most of the seventh- to sixth-century pottery assemblages in the highlands of Edom (and linked to Edomite ethnicity), have their roots in the ninth- through tenth-century B.C. forms present in the lowlands. The implication is that the formation of Edomite identity was much earlier than that suggested by Porter (2004), who stresses the formation of an elite Edomite identity during the eighth and seventh centuries B.C. based on: (1) encouraging the shift *from* pastoral nomadic subsistence practices *to* sedentary ones; (2) promotion of a unified cult under Qos as evidenced on epigraphic finds; (3) the construction of a political and administrative center at Busayra; (4) the redistribution of prestige objects to loyal subjects; and (5) the territorial expansion of the Edomite polity. While elite Edomite identity may have crystallized in the eighth–seventh centuries, the new data from the Edom lowlands indicates that this process started much earlier and that following Tapper (1990: 65), it was the ability of Edomite elites — already in the tenth century B.C. — to instill the hope of material gain for themselves and/or their society though new production opportunities in metallurgy (beyond pastoralism), that led to the emergence of complex societies (Edomite chiefdom confederacy) as early as the tenth century B.C.

The general impression of the Iron Age settlement pattern in this Saharo-Arabian desert zone is of a non-sedentary population in close association with mining and metallurgical sites. The only Iron Age cemetery to have been sampled in the lowlands of Edom is the site of Wadi Fidan 40 (Levy, Adams, and Muniz 2004; Levy, Adams, and Shafiq 1999) located at the western entrance to the Faynan copper-ore district on the edge of the Wadi Arabah. As mortuary sites are perhaps the best source of information on ethnicity in the archaeological record (Faust 2004; Rakita et al. 2005), and the role of ethnogenesis in the rise of complex societies in Edom is be discussed below, the following is a brief overview of this Iron Age cemetery.

The Wadi Fidan 40 cemetery was first systematically excavated in 1997 when sixty-two graves were excavated (Levy et al. 1999), followed by two emergency excavations in 2003 that revealed fifty-two graves and in 2004, 173 graves, giving a total of 287 excavated graves. The cemetery is situated on a Pleistocene conglomerate terrace that overlooks the Wadi Arabah and marks the entrance to the copper-ore-rich Faynan district (fig. 9.6). The UCSD-DOAJ surveys in the Edom lowlands identified seven Iron Age cemeteries along the Wadi Fidan, four along the Wadi al-Guwayb, and nine on the banks of the Wadi al-Jariyeh. There are also isolated rock cairns, such as those excavated at the Early Bronze Age site of Wadi Fidan 4, that represent Iron Age tombs. Given the large number of Iron Age cemeteries in the lowland region, the unusually well-preserved grave sample from Wadi Fidan 40 is especially important in terms of identifying the Iron Age human population in the area. Here only a brief summary is presented.

The core area of the cemetery extends over an area of 0.69 hectare (6,900 sq. m). Based on the recently excavated grave sample of ca. twenty-five graves per 25 sq. m excavation unit, it is possible that within the cemetery core area there are nearly 7,000 graves present. This estimate is based on the more recent 2003–2004 excavations and is considerably higher than the 1997 excavations estimate (Levy et al. 1999). The reason for this is that the 1997 sample exposed only those graves that had grave-circle features visible on the site surface, whereas in 2003–2004 we re-excavated all the excavation squares (as well as opening new units), revealing a much more dense packing of graves than previously imagined (fig. 9.6).

By the end of the 2004 excavation season it was clear that a range of different style burial monuments were present in the cemetery including large grave circles above cists, isolated stone-lined cists, square platforms, extensive (over 5 m in diameter) grave circles, concentric grave circles with standing stones (fig. 9.7), and other mortuary structures. At present, the full assemblage of graves and their contents is being studied (Beherec n.d.).

Most of the graves seem to have been disturbed in antiquity, probably during the Iron Age. In spite of these disturbances, a wide range of burial offerings were found with the bulk of the non-secondary burial population. It seems that cists were specifically designed for the individual dead depending on their size. Thus, infants and children are found in small cist graves and adults in full-size units that accommodate their extended or semi-crouched burial position. Some of the offerings include beads, necklaces, copper and iron jewelry (bracelets, anklets, finger and toe rings), wooden vessels, shrouds (of linen and animal skins), pomegranates, and other objects (Levy et al. 1999). The most recent excavations revealed an important assemblage of carved anthropomorphic standing stones that range from 25 to 90 cm in height and consist mostly of individuals with protrusions indicating shoulders, noses, and ears (fig. 9.8) (Levy et al. 2005a). These anthropomorphic standing stones are unique to the Edom lowlands and may be an important cultural/ethnic marker of the Iron Age population buried at this site. Preliminary spatial analyses suggests clustering of graves in family units with some social ranking based on remaining grave-good inclusions (Goldstein 1981) and energy expenditure in burial monument construction (Binford 1971; Levy and Alon 1982). The lack of ceramic grave offerings, the projection of social wealth on female burials, the presence of wooden-bowl burial gifts, and the absence of Iron Age habitation villages along the Wadi Fidan, Wadi al-Guwayb, and Wadi al-Jariyeh, especially in close proximity to the massive cemetery at Wadi Fidan 40, suggests the buried population was part of a nomadic community. High precision radiocarbon dates (Levy et al. 2005) from short-life pomegranate seeds found inside four tombs from different parts of the cemetery show that it was in use from the late eleventh through ninth centuries B.C. with peak usage during the tenth century.

In summary, the recent archaeological surveys and excavations in the Edom lowlands indicate a landscape where sites related to mining, metallurgy, and mortuary sites dominate the Iron Age archaeological record. The paucity of Iron Age villages, with the exception of Barqa el-Hetiye (Fritz 1994), a small ninth-century B.C. copper-working settlement located in the dune area some 6 km south of the main Wadi Faynan drainage (and possibly Tel Faynan usually linked to Biblical Punon), coupled with widespread cemetery evidence that may indicate territorial markers, suggests the presence of a large nomadic population interacting with the lowlands throughout the Iron Age. The presence of a large tenth-century B.C. fortress at Khirbet en-Nahas contemporary with industrial-scale copper production and a re-organized ninth-century B.C. production center with widespread construction activities must be evaluated in connection the ceramic assemblage at the site. As shown in the first in-depth study of the ceramics from the site (Smith and Levy 2008), while the archaeological strata where these

artifacts come from have been securely dated with high precision radiocarbon dates, the assemblage is locally produced and stylistically similar to the Late Iron Age (IA IIc, seventh and eighth centuries B.C.) ceramic assemblages defined at the highland sites and labeled "Edomite" (Hart 1986; Hart 1987; Hart 1989; Hart and Knauf 1986; Oakshott 1978; Oakshott 1983). While there is a problem in linking pottery with people, as shown in many ethnoarchaeological studies (Dever 1995; Jones 1997; Killebrew 2005; Redmount 1995; Small 1997), potting traditions may indeed reflect the identity of the makers (David and Kramer 2001; Holl and Levy 1993; Kramer 1985; Sengupta, Roychoudhury, and Som 2006). Given these constraints, if the material cultural assemblage of the seventh- through eighth-century B.C. highland sites such as Busayra, Umm al-Biyara, Tawilan, and others are taken to be "Edomite," the development of these traditions can be traced in the archaeological record of the lowlands of Edom during the eleventh through ninth centuries B.C. This means that the majority of the Iron Age archaeological evidence from the Edom lowlands, with the exception of some trade items, indicates an especially active "Edomite" population in the lowlands during the tenth through ninth centuries and probably earlier. More limited eighth- through seventh-century "Edomite" activity is evidenced by a variety of sites such as the large enclosure at Rujm Hamra Ifdan (Smith, Levy, and Najjar n.d.), several smelting sites and mines (Hauptmann 2007), and some newly discovered forts overlooking the Wadi al-Guwayb (Ben Yosef, Levy, and Najjar 2008). Thus, the centrality of a nomadic population interacting with mining, metallurgy, and trade against the background of fortified sites throughout the Iron IIa–c sequence is evident.

ETHNOGENESIS

To attempt to identify some of the underlying forces that may have led to the emergence of Iron Age complex societies in Edom — whether we refer to them as complex chiefdoms, chieftaincies, Levantine Iron Age kingdoms, small secondary states, or nomadic states — we may productively investigate this through the processual lens of ethnogenesis. Iron Age historical records suggest that societies in Edom were organized along patrilineal decent principles (Schloen 2001) where kinship remained a central factor in alliance formation (Stager 1985). This suggests the importance of ethnic identity in the formation of these complex polities in Iron Age Edom. Following De Vos (De Vos 1995) ethnicity can be defined as "self-perceived inclusion of those who hold in common a set of traditions not shared by others with whom they are in contact." These include a number of traditions such as: "Folk" religious beliefs and practices, language, aesthetic cultural patterns (such as tastes in food, dance tradition, styles of clothing, and definitions of physical beauty), a sense of historical continuity, common ancestry, or place of origin, territoriality, and economic specialization. The group's actual history often trails off into legend or mythology, which includes some concept of an unbroken biological-genetic generational continuity to the group. While endogamy is usual, there are ways to initiate outsiders into the ethnic group so that the group's sense of generational continuity is not upset. Many of these attributes of ethnicity have material correlates in the archaeological record. The processes in which ethnic identity are formed can be subsumed under the notion of "ethnogenesis."

The *Macmillan Dictionary of Anthropology* defines ethnogenesis as "the construction of group identity and resuscitation or persistence of cultural features of a people undergoing rapid and radical change. It may also be used to refer to a new ethnic system emerging out of an amalgamation of other groups" (1986: 97). For T. Patterson, "ethnogenesis is the historical creation of a people with a sense of their collective identity…" (1991: 31). From a social

evolutionary perspective, G. Emberling (Emberling 1997: 308), links the formation of ethnic identities with the emergence of states and suggests "that ethnogenesis is closely connected with state formation processes and with state control, arguing the creation of new ethnic identities emerges when a state or empire conquers independent groups. In A. Faust's 2006 work on Israelite ethnogenesis (see also Levy and Holl 2002) he follows Emberling in seeing ethnicity as a form of *resistance*, especially among social groups interacting with state-level societies. I agree with this, but add that the formation and strengthening of ethnic identities can also occur through a wide range of what C. Renfrew and J. Cherry refer to as processes of "*peer-polity interaction*" or competitive social interactions on the local scale within and between band, tribe (or segmentary society), and chiefdom organizations — as well as archaic states. Thus, the catalyst for ethnogenesis must be a multivariate process that occurs, for example, as a result of conflict when a state or empire conquers independent groups or these groups compete against each other for resources. Patterson (1991: 31) suggests that cultural transformation or new ethnicities may result from *hybridization, fusion, or even replacement by state-imposed forms*; alternatively, ethnogenesis may emerge due to resistance or attempts to assert tradition. Thus, the activity of a central government can both "impose" an identity on a group of people, even if they did not have this identity before, as well as promote the emergence of a new ethnic identity as a form of resistance to its activities. Agreeing with Emberling (Emberling 1997; Emberling and Yoffee 1999) and Faust (Faust 2006), I suggest that *resistance* to "the other" — whatever the level of social organization (tribe, chiefdom, chieftaincy, confederacy, "protostate," "nomadic state," "secondary state") — is one of the key factors that promotes ethnogenesis in Iron Age Edom and ultimately complex society.

SOME HISTORICAL BACKGROUND IN LIGHT OF NEW RADIOCARBON DATES

As discussed here and elsewhere (Hauptmann 2007; Higham et al. 2005; Levy et al. 2004; Levy et al. 2005b), archaeological and radiocarbon data show that the Iron Age of the Edom lowlands begins as early as the eleventh century B.C. and has a floret of metal production during the tenth and ninth centuries B.C. There is also limited evidence of Iron Age activity in this region during the eighth and seventh centuries B.C. While some scholars have taken issue with the early dating of the Iron Age occupation in the lowland region (Finkelstein 2005; Levy and Najjar 2006b; Levy, Najjar, and Higham 2007b; van der Steen and Bienkowski 2006) these critics have been countered with hard archaeological and radiometric data demonstrating the long Iron Age occupation of Edom (Levy, Higham, and Najjar 2006; Levy and Najjar 2006b; Levy, Najjar, and Higham 2007a; Levy et al. 2008a). While eighth–seventh-century B.C. settlement data are limited in the lowlands, at this time the highlands experienced an expansion of settlement with a central site located at Busayra (Balla and Bienkowski 2002), numerous villages and defensive sites such as Umm al-Biyara (Bennett 1966a; Bennett 1966b), Sela (Dalley and Goguel 1997), and other locales. Thus, in light of the new archaeological data from the lowlands of Edom, the search for historical sources linked to Edom can confidently span the eleventh through seventh centuries B.C. and probably several centuries on both sides of this block of time.

While there are local Edomite signet seals, seal impressions, inked ostraca, and graffiti dating from the eighth through seventh centuries B.C. found in late Iron Age levels at the port site of Tell el-Kheleifeh, highland sites in Edom (Crowell 2004; DiVito 1993; Naveh 1982;

Porter 2004), and some locales in Israel, textual data from the formative period of Iron Age Edom comes mostly from Egypt, with some glimmers of history in various "layers" of the Hebrew Bible (Levy 2008a, 2008b). To date, no evidence of Late Bronze Age mining, metallurgy, or occupation has been found in the Faynan district, however, 106 km to the south at Timna, in the other main copper-ore district of the Wadi Arabah, there is evidence of Egyptian activities in the region during the Nineteenth and Twentieth Dynasties as evidenced by several cartouches of pharaohs from Seti I through Ramesses IV, ca. 1300–1150 B.C. (Rothenberg 1972), and an Egyptian Late Bronze Age shrine or temple (Rothenberg 1988). The presence of "Midianite" or "Quwayra ware" pottery has led Rothenberg (Rothenberg 1999) and Bartlett (Bartlett 1989: 74–75) to suggest that the population at Timna was composed of Egyptians, local inhabitants (Edomites?), and others (Midianites?) — including prisoners and slaves who were forced to work the mines for the Egyptians. As noted above, the Iron Age archaeological settlement pattern data for the lowlands of Edom indicate a non-sedentary nomadic population that we may assume relied on herding as one important component of their economy. K. Kitchen's 1992 summary of Late Bronze Age to early Iron Age textual data from Egypt support this interpretation where Edom is referred to as *Seir* and inhabited by "clans" (*wh*ꜣ*ywt*) ruled by "chiefs" (*wrw*). This is portrayed in the Papyrus Anastasi VI that uses the term "Edom" and states, "we have finished with allowing the Shasu clansfolk of Edom to pass the fort of Merneptah that is in Succoth, to the pools of Pi-Atum of Merneptah that are in Succoth, to keep them alive and to keep alive their livestock…" (Gardiner 1937: 76–77; translations in Pritchard 1969: 259′, with notes in Caminos 1954: 293). The later text from the reign of Ramesses III (ca. 1184–1153 B.C.), known as the Papyrus Harris I, also portrays a pastoral nomadic population in Edom and the shifting nature of relations between the Egyptian state and these northeastern nomads: "I destroyed the Seirites, the clans of the Shasu, I pillaged their tents, with their people, their property and their livestock with limit…" (Erichsen 1933: 93; translations in Pritchard 1969: 262:I). While it is clear that the Late Bronze–early Iron Age Egyptian state referred to the pastoral nomadic population of Seir/Edom as "Shasu," we do not yet know what these people actually referred to themselves as. It is against this historical background that the Wadi Fidan 40 cemetery has been linked to the Shasu population mentioned in these Egyptian texts (Levy, Adams, and Muniz 2004; Levy, Adams, and Shafiq 1999). Based on the radiocarbon dates from this cemetery (Levy et al. 2005a), its peak use was during the tenth century B.C. Taken together, these data indicate the presence of a very large nomadic population during the tenth century B.C. in the lowlands of Edom. Based on the scholarly consensus on the centrality of nomadism as an important "deep-time" adaptive mechanism for populations residing in the region of Edom (Bienkowski and van der Steen 2001; LaBianca and Younker 1995; Levy 2004), an important variable for understanding the rise of the "nomadic state" in Iron Age Edom is the structural underpinnings of the Middle East tribal system from a processual perspective. For some discussion of issues concerning Iron Age Edom, metal production, and the Hebrew Bible, see Bartlett 1989; Bienkowski 1995; Edelman 1995; Finkelstein 2005; Knauf-Belleri 1995; Knauf and Lenzen 1987; Levy 2002; Levy 2004; Levy 2008; Levy and Najjar 2006a; Levy and Najjar 2007; Na'aman 2004; and Whiting 2007.

OSCILLATING TRIBAL SEGMENTARY SYSTEM

In discussing the emergence of "tribal kingdoms" in the Iron Age of Transjordan, some scholars see the role of nomadism in the rise of these complex polities (LaBianca 1999;

LaBianca and Younker 1995). Part of the problem may be an over-reliance on late nineteenth- and twentieth-century A.D. ethnographic and ethnohistorical research that results in a static picture of the nomadic and semi-nomadic Bedouin Arab tribes of the region. Similar assumptions have been made in other parts of the Middle East, such as Iran, in L. Helfgott's (Helfgott 1980) study of the Qajjar state. As pointed out by Khazanov (Khazanov 1994), while pastoralism is a key component of nomadic societies, their relationship with neighboring polities — mostly settled — opens up a wide range of other economic pursuits by nomadic peoples. Rather than focus on the notion of herds and herding as the central variable for promoting change in nomadic people's social organization through time, it may be more useful to spotlight some aspects of the segmentary lineage model that underlies tribal genealogy and kinship structure. The sementary lineage system has been defined as a particular form of higher order descent group organization … a part of a wider system of kinship in specific societies and part of kinship analysis in cultural systems (Baştuğ 1998: 95). The segmentary lineage system model was conceived by Evans Pritchard in the 1940s, and like all general models, has been both embraced and critiqued as not applicable in some areas of the Middle East (Munson 1989) or of little value. Without delving into this long-standing anthropological controversy, most scholars find value in the focus on the principle of "segmentation" that structures this principle in tribal societies — especially those nomadic societies in the Middle East. This was first clarified by E. L. Peters, who worked with camel-herding tribes of Cyrenaica (Peters 1967) and showed the segmentary linage model to be more of a tribal ideology than an indicator of behavior. In a general discussion of the "segmentary tribe," Sahlins (1968: 20) portrays it as the basic structural building blocks that enable chiefdoms to emerge where at the lower end of social complexity tribes are inherently decentralized, and at the higher end, chiefdoms (still organized along kinship and decent) work toward integration of the segmentary system at its highest levels. With the establishment of chiefdoms, segmentary tribes are consolidated into more complex social organizations with more developed ritual, ideology, and economic structures. Without assuming a teleological "social evolutionary step-ladder" of band-tribe-chiefdom-state (Yoffee 1998), it is the segmentary principle (Eickelman 1981: 131–38) embedded in tribal societies that allows them to evolve and devolve, to adapt to changes in both the natural and cultural environments and oscillate between small decentralized tribes to complex chiefdoms, to chiefly confederacies and back. According to T. Barfield (Barfield 1993: 75), the patrilineal lineage model is exemplified in the Bedouin Arab tribal systems of the Middle East where "within the tribe, the relationship between each lineage or clan rested in theory on segmentary opposition, that is, they were expected to support or oppose one another based on their degree of relatedness." This process of social fusion and fission provides nomadic tribal societies with an adaptive mechanism which, along with the principle of social "resistance" in ethnogenesis and the notion of political ecology, may help explain the rise of Iron Age complex societies in Edom.

POLITICAL ECOLOGY

As noted above, political ecology aims at understanding how access to natural resources plays a critical role in structuring the political and economic life of societies, especially how food and other basic resources are procured. One of the guiding studies for political ecology research is Piers Blaikie's 1985 *The Political Economy of Soil Erosion*, which examined how land degradation in sub-Saharan Africa was linked to colonial land appropriation, rather than over-use by local traditional farmers. As an analytical tool for archaeologists, political ecology

can help (a) clarify decisions that communities make about their natural environment in the context of their changing political environment, economic pressure, and cultural context; (b) explore how unequal relations among societies in a research area affect the natural environment; and (c) investigate how unequal sociocultural relations affect the environment.

SUMMARY

In the context of a distinctive civilization collapse of all eastern Mediterranean ancient "superpowers" at the end of the Late Bronze Age, and increasingly aridity, nomadic peoples residing in the southern Levantine desert zone and the Hijaz region in northwest Arabia took advantage of a power vacuum created by the collapse of world (eastern Mediterranean) markets and colonial projects. For the southern Levant, one of the most significant impacts was the collapse of Cyprus as the main supplier of Late Bronze Age copper for the region. During the Iron I–IIa periods, new social groups converged on Canaan (such as the Sea Peoples) and Transjordan that gradually evolved into distinct ethnic groups such as the Philistines, Israelites, Moabites, and Edomites. New archaeological data from the lowlands of Edom show a relatively rapid process for the formation of a local complex chiefdom already in the tenth century B.C. that was nomadic in both practice and ideology, but in the context of the political ecology of the region increased their production strategies beyond animal husbandry to include sophisticated mining, metallurgy, and control of the copper trade to boost their economies and dominate neighboring peoples. The prominence of mining and metallurgical activities in the Faynan district created a highly specialized Iron Age industrial landscape infused with local nomadic Edomites who formed part of a complex chiefdom. Through processes of fusion and fission related to the dictates of carrying out metal-production activities in this Saharo-Arabian desert zone in an environment with less rainfall than today, the Edomites carried out metal production activities in the cool fall months and winters, and moved up to the highlands in the summer months. A burial with tenth-century B.C. gold jewelry found at Tawilan and stylistically similar to samples found at KEN and the WFD 40 cemetery may be an indicator of such lowland-highland interaction (Levy et al. 2005a; Ogden 1995). By developing a highly successful metal industry in the tenth century B.C., it is possible the Edomites attracted the interest of neighboring polities such as Israel early in the century, and perhaps at the end of the tenth century B.C. the Egyptians, as evidenced by ornaments dating from the time of Siamun and Sheshonq (Shishak) I found in a securely dated context in a metal-production building at Khirbet en-Nahas. As suggested by the ethnogenesis model above (Faust 2006; Levy and Holl 2002; Levy 2008a, 2008b), Edomite resistance to neighboring polities such as the Israelite, as well as the Egyptian state, may have been another key factor in stimulating the expansion of eleventh–ninth-century B.C. copper production and their social and ethnic identity as an expanding chieftaincy at this time.

The following summary points can be made concerning the data that indicate the formation of the Edomite chiefly confederacy that begins in the tenth century B.C. and peaks in the ninth century B.C.:

- High-precision radiocarbon dates demonstrate the deep-time history of Iron Age Edom, from at least the twelfth through ninth centuries B.C. (Higham et al. 2005; Levy et al. 2004; Levy et al. 2005b). Most recently, a new sequence of high-precision radiocarbon dates from the first controlled excavations of a slag mound at Khirbet en-Nahas demonstrates intensive industrial-scale metal production during the tenth and

ninth centuries B.C. (Levy et al. 2008). The mining and smelting activities associated with these archaeometallurgical data indicate that complex societies were responsible for industrial-scale metal production during these centuries. While it is not yet possible to identify who controlled metal production in Faynan during these centuries, the dominance of local "Edomite" pottery from the excavation samples indicates the centrality of the local population in metal production at this time (Smith and Levy 2008). When these data are linked to archaeological materials such as Qurayra ware, Egyptian scarabs and amulets, Cypro-Phoenician ware, black burnished juglets, and other ceramic types, there is evidence of interaction between a number of different ethnic groups at KEN, including Edomites, Phoenicians, Israelites, Egyptians, and "Midianites" (see Levy et al. 2004; Rothenberg 1998; Rothenberg and Glass 1983) during the Iron Age from production and other sites in the Faynan district of the Edom lowlands. The establishment of a radiocarbon-based chronology from stratified excavations in southern Jordan adds some 300 more years to the Iron Age chronology of Edom (Levy et al. 2008). This new framework requires that researchers re-engage the Hebrew Bible and other historical datasets concerning pre-eighth-century B.C. Edom to test and model the nature of socioeconomic change at this time.

- Excavations in the Iron Age WFD 40 cemetery indicate the presence of a large nomadic population in Edom lowlands with economic specialization in pastoralism, but possibly mining and metallurgy. Chemical analyses of human remains will be carried out to test the hypotheses that this population was involved in the industrial-scale metal production in the Faynan region. There is potential for such studies for human and animal remains in Faynan and the Negev Desert (see Grattan, Gilbertson, and Hunt 2007; Grattan, Huxley, and Pyatt 2003; Hunt et al. 2004; Pyatt et al. 2000; Pyatt and Grattan 2001; Pyatt 1999). This research is being planned with geochemist Yigal Erel from the Institute of Earth Sciences, Hebrew University of Jerusalem. Contamination of the environment with toxic metals (e.g., lead, cadmium, copper) has been a worldwide problem since the Industrial Revolution. However, there is ample evidence that the global pollution by metals started a long time before then, as shown by J. Grattan and others (Grattan, Gilbertson, and Hunt 2007). Among other issues, our research will trace through the Iron Age how humans have been polluted from metal production and how this may have related to the rise of ranked societies at this time in the southern Levant.
- Although studies of the Wadi Fidan 40 cemetery have been preliminary (Beherec in progress; Levy, Adams, and Shafiq 1999; Levy et al. 2005a), the layout of the circular and cist grave mortuary structures shows no centralized burial monuments and probably reflects a segmentary society social organization. The burial patterns reflect local "Folk" religious beliefs and practices. Based on historical Egyptian data, the Egyptians referred to these people as "Shasu" nomads (Avishur 2007; Kitchen 1992; Levy and Najjar 2006a). At this time, we do not know by what name this population referred to themselves. However, based on numerous studies of the Hebrew Bible, the name "Edomites" is most likely.
- The typical decorated painted ceramic wares from Iron Age Edom, sometimes referred to as Busayra ware, were typically ascribed by earlier researchers as dating only to the seventh century B.C. or later. However, new studies of this material found at sites in Israel have pushed the dating of this ware back to the eighth century B.C.

(Singer-Avitz 2004). Our recent excavations at Iron Age sites in the lowlands of Edom demonstrate Busayra ware is also found in tenth- and ninth-century B.C. stratified sequences. Taken together, the new data imply long-term development of *aesthetic cultural patterns* between the lowlands and highlands of Edom providing a possible indicator of Edomite ethnicity and the process of ethnogenesis.

- Twelfth- through ninth-century Edomite identity was shaped by local peer-polity interaction (Renfrew 1986; Renfrew and Cherry 1986) and resistance to neighboring social groups — as well as rejuvenated by Egyptian state expansionary projects in the Twenty-first and Twenty-second Dynasties. While Egypt was unable to reinstitute its Late Bronze Age-style colonization of Palestine, the pharaoh Shoshenq I was keen to disrupt the socioeconomic order that David and his son Solomon had established. The recent excavations and analyses of a mound of industrial copper slag at KEN document a major disruption in production at the end of the tenth century B.C. that may be attributed to the Shoshenq I campaign (Levy et al. 2008). Due to processes of oscillations in core civilization power during the Twenty-first and Twenty-second Egyptian Dynasties, they were unable to reinstate the colonial model, probably due to what Gil Stein (Stein 1999) refers to as the "Distance Parity Model." With the dissipation of core civilization influence from both Mesopotamia and Egypt at this time, peer-polity interaction between Edom, Israel, Moab, Philistia, and other small local complex societies became a major platform for the negotiation of power.
- Early *resistance to neighboring peer polities* and conflict within Shasu segmentary society of Iron Age Edom led to processes of fission within Seir/Edom. Soleb temple and Amarah inscriptions "*Yhw* (in) in the land of the Shasu." Dates from late fifteenth century B.C. suggesting the "tetragrammaton" name of the Israelite god "Yahweh." Biblical tradition suggests that Yahweh came "forth from Se'ir" and originated in Edom (see Redford 1992: 273, who calls them the Shasu/Israel group), thus early Israel may have been one of the Shasu clans.
- As outlined here, and as especially articulated in Faust's work for ancient Israel, different processes of ethnogenesis were followed for the different ethnic groups in southern Jordan/Hijaz, Northwest Arabia, that is, Midianites, Edomites, Israelites. This is an extremely fertile problem area for future investigation.
- Language — Development of the Edomite script may represent the tail-end of ethnogenesis among elite groups in Edomite society (Porter 2004).
- Finally, maintenance of Edomite ethnicity in the Neo-Assyrian period (seventh–sixth centuries B.C.) led to resistance and negotiation with a core civilization, effecting social changes that went well beyond those caused by peer polity interaction.

In conclusion, the "oscillating tribal segmentary social system" model discussed here can help explain how, in a marginal desert environment under the push and pull of neighboring polities and ancient core civilizations, nomadic peoples could adapt and grow into a small secondary state-level society. By focusing on three interrelated processes — ethnogenesis, political ecology, and the oscillating tribal segmentary social system — we are on the road to understanding how social evolution in the late second and first millennia could occur. Much more work needs to be done that is rooted in archaeological field research and scientific approaches to the Iron Age archaeological record of the southern Levant.

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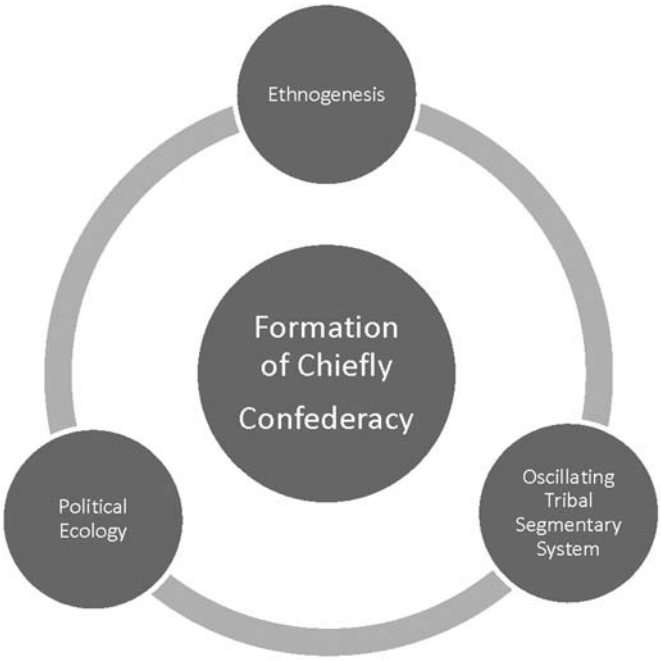

Figure 9.1. Model for the formation of a chiefly confederacy

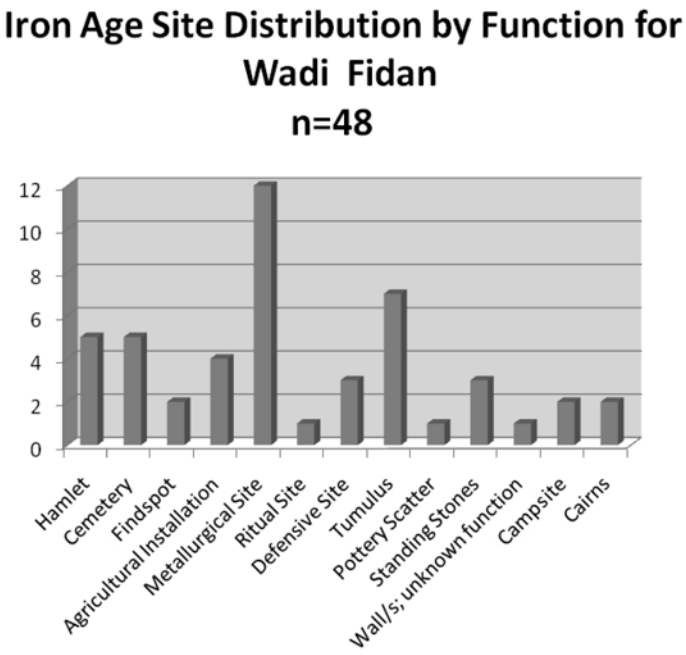

Figure 9.2. Histogram of Iron Age sites by function along the Wadi Fidan, 1998 and 2004 surveys (Levy et al. 2001) (note: 2004 data published here for the first time)

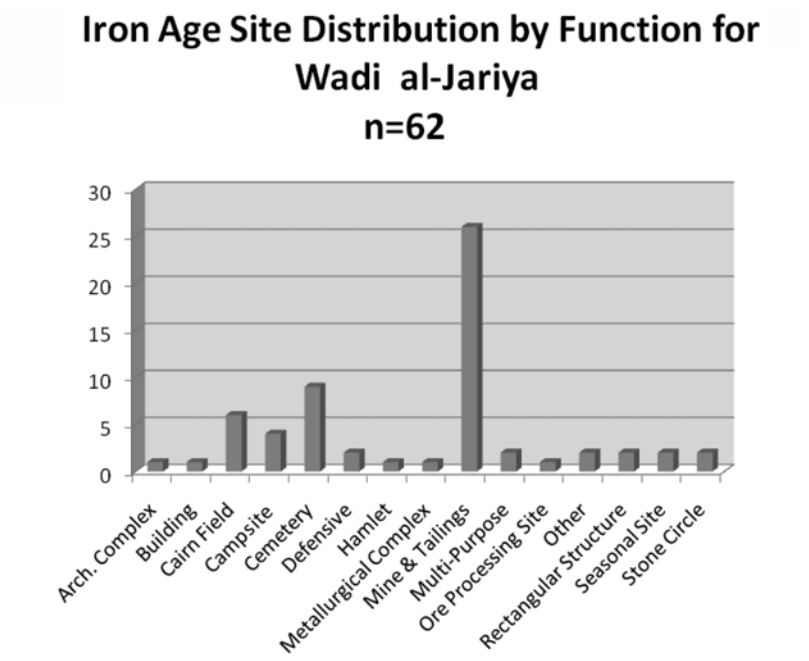

Figure 9.3. Iron Age archaeological sites along the Wadi al-Jariyeh, 2002, 2007 surveys. Note the spike in copper-mining sites (for 2002 survey data, see Levy et al. 2003)

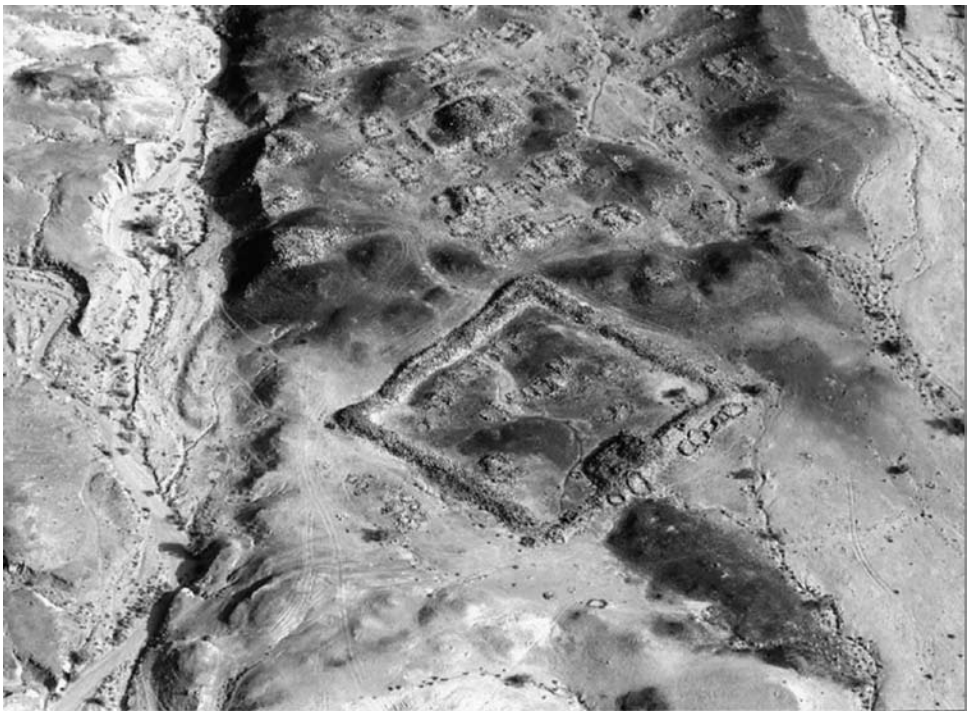

Figure 9.4. Aerial view of Iron Age (ca. eleventh–ninth century B.C.) copper-production center at Khirbet en-Nahas, Jordan (photo courtesey of UCSD Levantine Archaeology Laboratory)

Figure 9.5. Overview of Khirbet al-Jariyeh, a secondary center of copper production in the Edom Lowlands (photo by T. E. Levy)

Figure 9.6. Overview of 2004 excavations in Iron Age cemetery at Wadi Fidan 40, looking north. Note that the Wadi Arabah is visible in the upper left corner. Most graves are characterized by stone-lined cists that are excavated ca. 80–100 cm below the surface. The location of the cists was then marked by a circle (average 1.20 cm diameter) of Dolorite wadi cobbles (photo by T. E. Levy)

Figure 9.7. Overview of grave circle marking the location of a sub-surface cist grave (Area C, Grave 712). This is an unusual example in that it has a well-preserved standing stone in the center of the grave surrounded by a smaller circle of stones (photo by T. E. Levy)

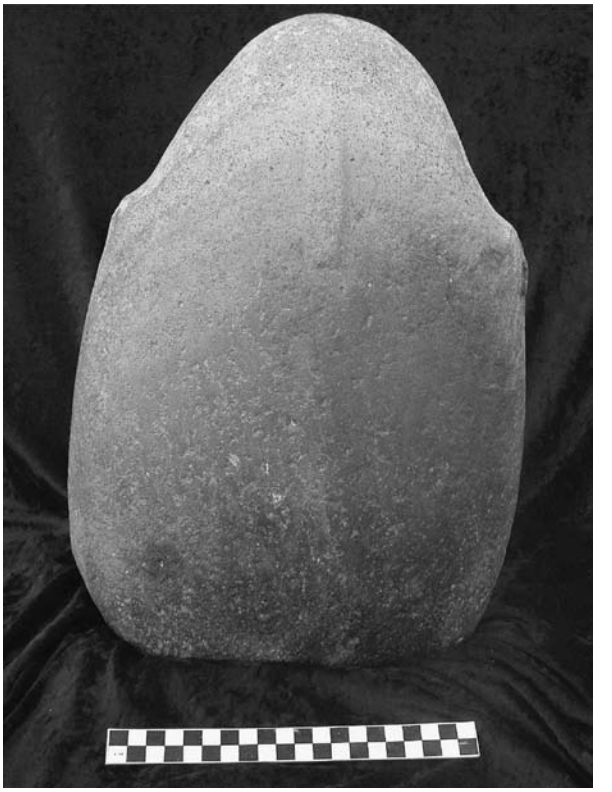

Figure 9.8. Dolerite anthropomorphic standing stone with carved shoulders and elongated nose found on the surface of the Wadi Fidan 40 Iron Age cemetery, Area A (Basket 3233), Scale = 20 cm (photo courtesy of the UCSD Levantine Archaeology Laboratory)

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