



The Creative Millennia: Highlighting the Transitional Neolithic (ca. 9800-8000 BCE) in the Central Zagros, Iran


Hojjat Darabi¹
(37-57)

Abstract

The Central Zagros received pioneering research on the emergence of early agricultural and village life by R. Braidwood in 1959-60. However, later shifts in research toward the Levant put the Central Zagros in shadow for several decades until recently, when investigations have once again highlighted its key place in the Neolithization processes in West Asia. Unlike the Levant, where a protracted change from the Epipaleolithic to the Neolithic is seen, the border line between these two periods is evidently sharp in the Central Zagros suggesting that unprecedented features appeared during the first two millennia of the Holocene, a foundational time that is poorly known in the region. In light of new evidence, this period is addressed here under the chronological term ‘Transitional Neolithic’ (ca. 9800-8000 BCE). Current datasets suggest that, following an environmental improvement at the end of the Younger Dryas, local communities engaged in short-term inhabitations, collective or communal ceremonies, and had an increasing reliance on the wild progenitors of early domestic plant and animal species. This time span’s close interactions with natural resources provided people with growing ecological knowledge. We may think of longer occupation in desirable places and thereby population increases in the 9th millennium BCE. This instead could have gradually resulted in an environmental depression, however, caused either by population growth or by possible unfavorable climatic events. Archaeological evidence shows that from the mid-9th millennium BCE on, a change happened in subsistence strategies toward low-level food production. In fact, this was an eco-cultural event that broadened the human diet. The central Zagros saw multiple creative behaviors during both the early and late phases of the Transitional Neolithic, providing people with a robust foundation for the succeeding truly Neolithic way of life that took shape during the 8th millennium BCE.

Keywords: Central Zagros, Transitional Neolithic, Neolithization, Ecological Knowledge, Low-level Food Production.

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1. Corresponding Author Email: h.darabi@razi.ac.ir
Associate professor of Archaeology, Department of Archaeology, Faculty of Literature and Humanities, Razi University, Kermanshah, Iran.

1. Introduction

Since 1959-60, when R. Braidwood investigated Kermanshah to obtain evidence of early domestication and sedentary life (Braidwood 1961; Braidwood et al. 1960), the central Zagros has been a constant topic of discussion in this field. Previous research undertaken in the 1960-70s indicated a gap between the Late Epipaleolithic and the Early Neolithic in the region (see Hole 1999). Recent investigations, however, have narrowed it (Darabi et al. 2011; Matthews et al. 2013; Riehl et al. 2013; Richter et al. 2021), though the end of the Epipaleolithic is still obscure. We are still unaware of possible human habitation during the dry, cold climate of the Younger Dryas (ca. 11,000-9800 BCE) at the end of the Pleistocene. It is rather easier to explain data correlated with the Epipaleolithic and Neolithic entities while the period in between remains enigmatic despite its status as a fundamental stage in human history. When it comes to the investigation of the Neolithization process, one needs to give special attention to the first two millennia of the Holocene, a time span which is little known across the entire Zagros region as compared to the Levant and Anatolia. It is now widely believed that the Zagros played a key role, especially with regard to initial animal herding, particularly of goats (see Bangsgaard et al. 2021; Dally et al. 2021; Zeder 2002; 2005; 2008; Zeder and Hesse 2000). Indeed, this topic has predominated research on the Transitional Neolithic in the region while other aspects of human life are poorly investigated.

To date, only a few archaeological sites—including Sheikhi Abad (Matthews et al. 2013), Chogha Golan (Conard et al. 2013), Asiab (Bangsgaard et al. 2019; Darabi et al. 2018; 2019; Richter 2021) and Chia Sabz East (Darabi et al. 2011; 2013) —have represented the Transitional Neolithic (ca. 9800-8000 BCE) in the central Zagros. Other sites such as Jani (Matthews et al. 2013), Ghazanchi (Mashkour et al. 2021) and Kelk-e Asad Morad (Moradi et al. 2016) appear to have been established during the later phase of this time period, most likely during the 9th millennium BCE, though their chronology is not yet well-clarified (Figs. 1 & 2). As a whole, the excavated area correlated with this time does not yet exceed a few square meters, an issue remaining as a major research barrier in the region.

In the western Fertile Crescent, a continuous protracted change from Late Epipaleolithic to Early Neolithic has generally been assumed (see Ibanez et al. 2018; Watkins 2018). On the contrary, the eastern Fertile Crescent, specifically the central Zagros, appears to have witnessed a distinct trajectory suggesting an unprecedented radical shift in human life over the same time period, except for the chipped stone industry showing a kind of continuity from the previous period in some techno-typological criteria (Kozłowski 1999; Kozłowski and Aurenche 2005; Nishiaki and Darabi 2018; Olszewski 1994). In order to gain a better understanding of Neolithic, we need to address the preceding time spanning the transition from the Late Epipaleolithic to the Early Neolithic, a period that has yet been given the least attention, despite representing the roots of later socio-economic developments. Therefore, this article aims to highlight the Transitional Neolithic period in the Central Zagros by discussing how local communities of the region engaged with new variable environmental or anthropogenic issues and how creative they were in adopting new various strategies over this foundational time period preceding a truly Neolithic way of life.

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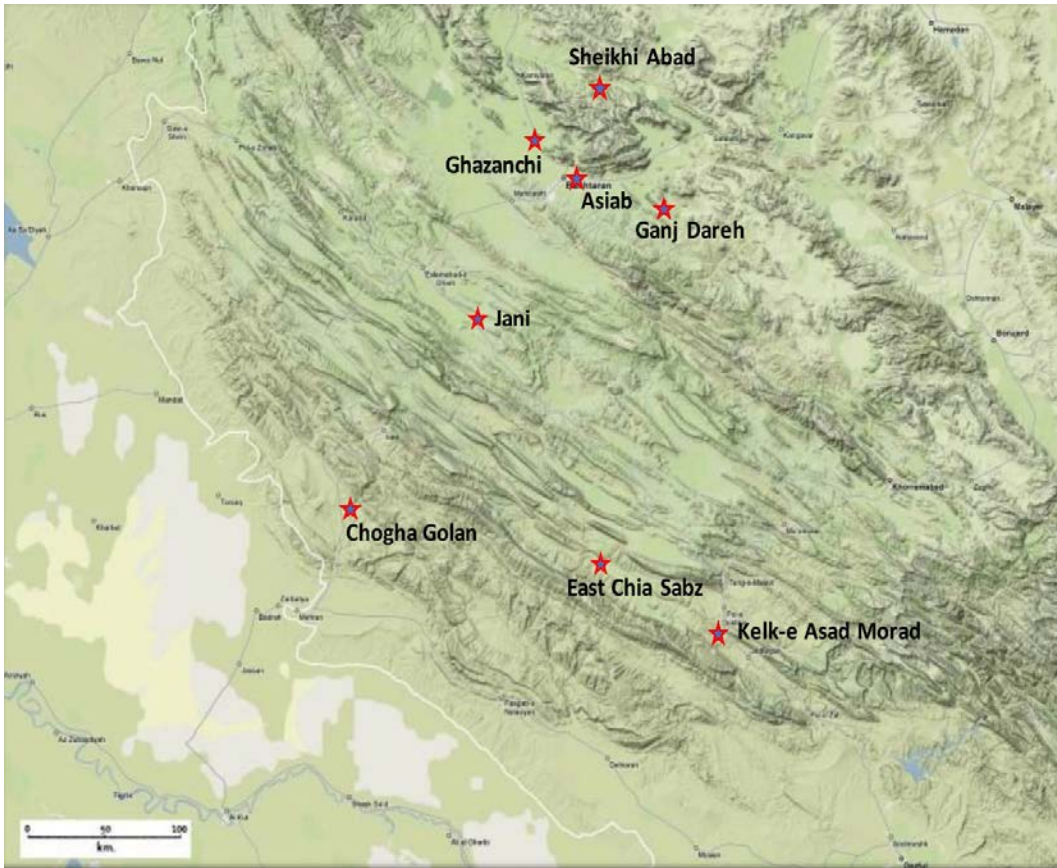


Fig. 1. Locations of the Transitional Neolithic sites in the Central Zagros

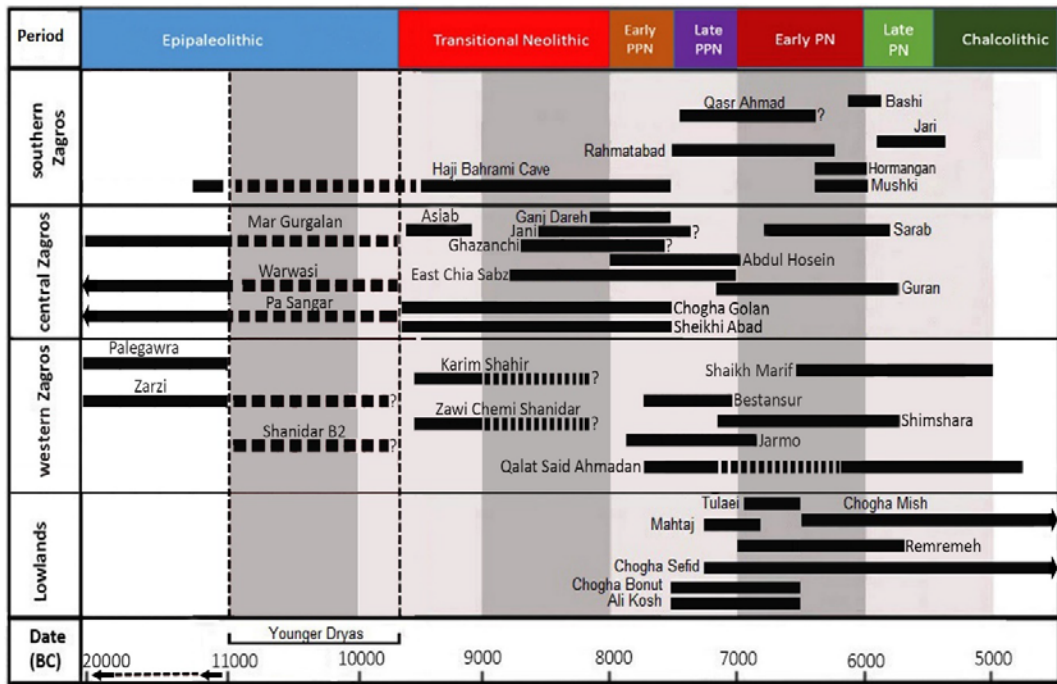


Fig. 2. Chronological Position of the Transitional Neolithic sites

2. A chronological-terminological consideration

The time period discussed here was first described by Braidwood as ‘the era of incipient food production’ (ca. 10,000-7,000 BCE) characterized by open-air sites, circular structures and the predominance of stone tools made on blade and bladelet as well as the presence of morphologically wild animal and plant species (Braidwood 1961, 1973). Until recent decades the lack of settlement predating the 8th millennium BCE would have played a key role in suggesting the hitherto most commonly used chronology proposed by McDonald (1979) who divided the Neolithic period into ‘Early’, ‘Middle’ and ‘Late’ phases in the Central Zagros. In the western Zagros, however, excavations at earlier sites such as at Zawi Chemi, Shanidar, Shanidar B1, and Karim Shahir encouraged Solecki to apply the term ‘Proto-Neolithic’ (11,000-8,300 BCE) for addressing the transition from the Pleistocene to the Holocene (Solecki and Solecki 1983; Solecki et al. 2004). Following Özdoğan (2005), Fazeli Nashli and Matthews (2013; also see Matthews and Fazeli Nashli 2022) utilized the terms ‘formative zone’ and ‘learning zone’ to refer to the primary and secondary centers of Neolithization respectively. They also refer to these terms as ‘becoming Neolithic’ and ‘being Neolithic.’ More recently, Matthews and Fazeli Nashli (2022) have put the transitional period under a long chronological rubric of the ‘Early Neolithic’ (9,800-7,000 BCE). They have also termed the preceding time marking the Pleistocene-Holocene boundary, ca. 11,000-9,800 BCE, as ‘the Epipaleolithic-Neolithic transition,’ a time that coincides with the Younger Dryas. Although it is generally believed that this harsh climate might have forced communities to change their residential focus in favor of lower altitudes (Darabi 2012; 2015; Hole 1970; 1996), they mention the sites of Shanidar B1, Zawi Chemi, Shanidar and Karim Shahir as the currently known settlements dating to this period. Nevertheless, this time remains as the most obscure period in the Zagros until new evidence can shed more light on it. In a broader geographic context, the Transitional Neolithic chronologically overlaps with the PPNA (ca. 9,800-8,600 BCE) and EPPNB (ca. 8,600-8,000 BCE) (see Simmons 2007; Ibanez et al. 2018), a time span that saw initial attempts towards cultivation in the Levant and also coincided with the abrupt appearance of a large number of settlements along the Upper Tigris in southeastern Turkey (e.g., Hasankeyf Höyük, Gusir Höyük, Kortik Tepe, Demirköy). As compared with the western Fertile Crescent, the apparent difference of archaeological inventories seen in the Zagros, especially the Central Zagros, could explicitly prohibit us from the application of the Levantine chronological terms (PPNA and EPPNB), highlighting the significance of a region-specific chronology (for chronological debate see Darabi 2015; 2019). Instead of the chronological-terminological disputes noted above, the term ‘Transitional Neolithic’ seems to be more reasonable to address the first two millennia of the Holocene. On the one hand, ‘transition’ makes evident sense to better show a time that bridges two distinct major periods, i.e., the preceding Epipaleolithic and succeeding Neolithic. On the other hand, it represents a duration shorter than other associated chronological-terminological terms. From some perspectives, this period can even be divided into two sub-phases (see below). It is obvious that if we place the whole three-thousand-year long period of the early Holocene within just one chronological unit such as the

Proto-Neolithic or Early Neolithic, it does not necessarily help us to better track diachronic cultural change and continuity of communities, since chronological debates are essentially meant to reveal subtle changes through time (Kuijt 2000). The same is true for the term ‘initial village’ designator for the entire Neolithic period (Hole 1987). This encourages us to make our chronological times as narrow as possible.

3. Interpretation of current data

The time spanning the 10-9th millennia BCE coincided with several crucial social evolutionary steps taken by humans in western Asia. However, it seems that a variety of pathways were paced in this respect, though a general trend can also be seen across this vast region. Both the western and eastern wings of the Fertile Crescent yielded different archaeological inventories suggesting different cultural trajectories during the transition to the Neolithic period. Recently, such a difference has been further discussed from an archaeobotanical viewpoint showing a regional diversity and diverse pathways towards cultivation (Arranz-Otaegui et al. 2016; Asouti 2017; Asouti and Fuller 2013; Fuller et al. 2011; Kabukcu et al. 2021; Riehl 2016). These all bring to light mosaics of transformation towards Neolithic lifestyles that were mostly situated in local environmental and cultural backgrounds at the turn of the Late Pleistocene-Early Holocene, though a protracted and slow transition from the Epipaleolithic to the Early Neolithic can be clearly delineated in the Levant for example (see Watkins 2018). On the contrary, the Central Zagros appears to have witnessed a distinct pathway. The available paleo-environmental evidence extracted from the lake-bed sediments of Zaribar (Stevens et al. 2001) and Hashilan (Rostami et al. 2021) have indicated that, by the end of the harsh climatic event of the Younger Dryas (ca. 11,000-9800 BCE), the temperature and rainfall had increased providing an environmental richness (Fig. 3). This environmental shift has been assumed to be the ecological foundation upon which later socio-economic developments were laid (Darabi 2012; 2015; also see Matthews and Fazeli Nashli 2022).

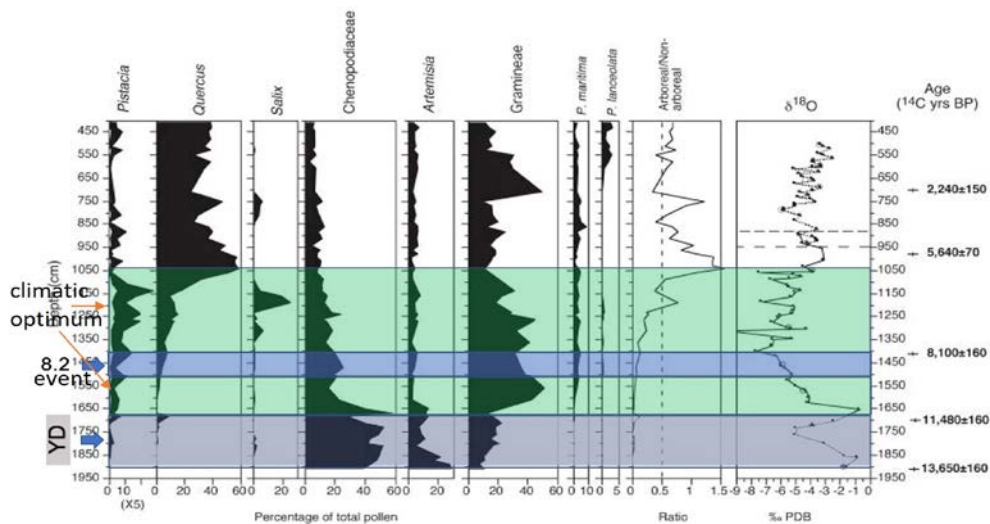


Fig. 3. Pollen diagram of Lake Zaribar cores indicating the YD and its subsequent climatic optimum, a condition that was, of course, interrupted by Rapid Climatic Changes (RCC) such as the 8.2ky event during the Early Holocene in western Iran (modified after Stevens et al. 2001.750, Fig.3).

Interestingly, this climatic optimum is chronologically synchronous with the establishment of new settlements such as Sheikhi Abad (Matthews et al. 2013), Chogha Golan (Conard et al. 2012) and Asiab (Bangsgaard et al. 2018; Darabi et al. 2018; 2019; Richter et al. 2021) in the 10th millennium BCE. It is believed that a diversification of resources provided people with the opportunity to inhabit new niches where they had easy access to a wide range of wild resources (Darabi 2012; 2015). As long as surrounding resources were available, these newly established settlements were periodically under occupation as well. Despite contemporaneous settlements in southeastern Turkey that resulted from sedentary life (see Özdoğan et al. 2011 and contributions therein), the settlements in the Central Zagros correlate with seasonal visits as indicated by the exposure of ash deposits at basal levels of Sheikhi Abad, Chogha Golan and Chia Sabz East. However, the degree of mobility appears to have decreased over time as some communities tended toward longer occupations during the late 9th millennium BCE, a phenomenon which resulted in the establishment of a sedentary life style as indicated by new excavations at Ganj Dareh (ca. 8,200-7,600 BCE) (Darabi et al. 2019). Generally speaking, the mobility changed from circulating to radiating patterns over a long time spanning late Epipaleolithic through late Neolithic though seasonal habitation was maintained through time either by foragers or subsequently herders (Fig. 4; see also Mortensen 1972).

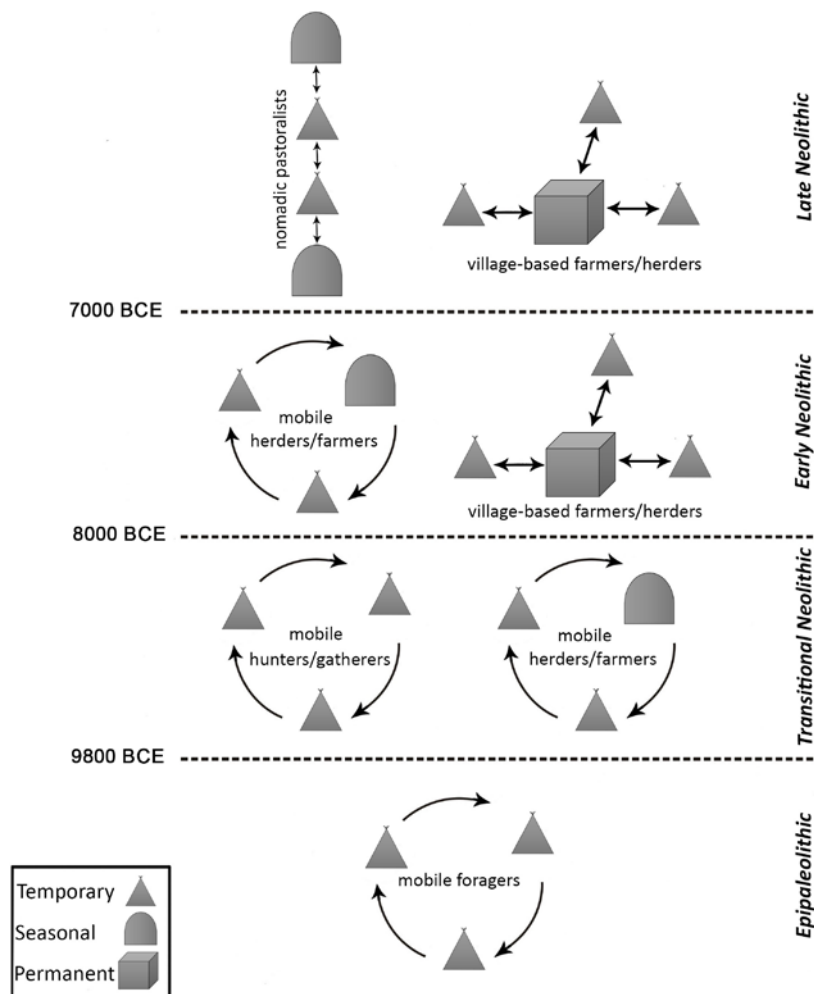


Fig.4. Explanatory model of settlement patterns and variation in mobility from the Late Epiplaeolithic through the Late Neolithic in the Central Zagros region.

In this regard, the Central Zagros seems to have still been inhabited by mobile hunter/gatherers, while from the 9th millennium BCE onward, mobile herders/farmers gradually appeared during later phase of the Transitional Neolithic. This indicates a close correlation between mobility level and subsistence strategy. It is assumed that over the first millennium of the transitional Neolithic, communities were intensively interacting with environmental resources, in particular the wild progenitors of early domesticates. As a result of increasing ecological knowledge inherited over generations, they realized the capabilities of the domesticable species according to ‘Niche Construction Theory’ (see Smith 2012; Watkins 2018; Zeder 2017). The reasons for the initial environmental manipulation that led to plant cultivating or animal herding have long been under discussion (for a history of the associated assumptions see Simmons 2007; Smith 2015; Wright 1971). Taking a local-scale perspective, the decrease of mobility towards sedentary life should have led to population increase and thereby environmental pressures on local resources. It is under these conditions that communities of the Central Zagros might have extended their subsistence options to feed their growing populations¹ (Darabi 2012, 2015). It should be noted that this environmental depression could have also resulted from climate change. However, our presently available evidence is not yet sufficient to conclusively show this hypothetical correlation. Therefore, one may consider this radical change as an event that had relied on cumulative ecological knowledge but which was triggered by an increasing need for alternative methods to secure food supplies. This idea might be somehow taken in line with ‘Diet Breadth Model’ which centers on the role played by resource depression (Smith 2015; Winterhalder and Kennett 2006). While placing empirical data against theoretical debates is beyond the scope of this article, the first phase of this transitional period is known as the stage of ‘increasing human-environment interactions and inherited ecological knowledge’ which was succeeded by the stage of ‘low-level food production’ in the second half of the 9th millennium BCE. Chronologically, while the former should have taken place over millennia the latter seems to have happened during several centuries in the central Zagros.

Current zooarchaeological evidence points to a hunting strategy concentrated on caprine species. However, micromorphological analysis attests to the presence of animal dung—and thus, animal penning—at Sheikhi Abad and Jani in the late 9th millennium BCE (Matthews et al. 2014). Both previous and new evidence from Ganj Dareh also indicates that goats were herded at the site (Bangsgaard et al. 20121; Zeder and Hesse 2000). Moreover, these specimens were genetically distinct from their wild ancestors, though they had not yet undergone any detectable morphological changes (Daley et al. 2021). The fact that animal domestication is generally considered to be a long-term process coinciding with protracted behavioral, genetic and finally physical change in the species (see Zeder 2011), one may assume that goats were under human control in earlier times during the 9th millennium BCE. In the western Fertile Crescent, pigs and cattle were synchronously herded during the 9th millennium BC. In addition, early signs of sheep domestication come from Anatolia (Vigne et al. 2017).

With regard to the botanical record, a similar process can also be surmised. However, recent studies suggest a shorter time span during which some crops or legumes were cultivated, critiquing the protracted hypothesis of Neolithization process at least in this case (see e.g., Kabucku et al. 2021). It is evident that wild progenitors of early cultivated species were intentionally and intensively exploited during the earlier phase of the Transitional Neolithic. Over time, an increasing reliance on crops and legumes is seen. Archaeobotanical analyses have shown a kind of pre-domestic cultivation practice already in place during the 9th millennium BCE at Chogha Golan and East Chia Sabz, an event deduced from a change from small seeded to large-seeded Fabaceae through time. Moreover, the first morphologically domesticated plants are observed in the beginning of the 8th millennium BCE, as shown by an increase in seed size and non-brittle rachis of barley, emmer and lentil (Riehl et al. 2012; 2013; 2015). Chogha Golan has yielded a long-term intensive reliance on wild crops which fluctuated according to variable climatic conditions through time, but which finally resulted in their domestication (Riehl et al. 2015). At Sheikhi Abad, an ‘auditioning’ of the locally available species is seen, indicating a selective strategy in plant exploitation. Here, the appearance of domestic barely has also been assigned to the early 8th millennium BCE (Whitlam et al. 2018), which is in line with a broader regional change in the subsistence patterns. As a whole, we may therefore suppose a division of the Transitional Neolithic with regard to subsistence strategy: first, the stage of intensive experimentation with wild species and, second, the stage of manipulation of domesticable species. This is roughly in line with the general trajectory observed in the Levant, where the initial cultivation of wild cereals was sporadically practiced during PPNA and then domesticated varieties appeared during EPPNB (Arranz-Otaegui et al. 2016; Ibanez et al. 2018).

In this respect, the early selective use of specific species suggests a kind of food resource management paving the ground for low-level food production. Recent data from the site of Gusir Höyük in southeastern Turkey has shown just such a development in the way that legume crop progenitors and nuts were intentionally selected during the 10th millennium BCE and then from the mid-9th millennium BCE onward, cereals, specifically wheat, and legume crop progenitors were likely cultivated at the site (Kabucku et al. 2021). However, crop progenitor species played only a small role in plant-based diets of the eastern Fertile Crescent, including the Central Zagros, while legumes and nuts were predominantly consumed during the first two millennia of the Holocene (see Arranz-Otaegui et al. 2016; Asouti 2017; Savard et al. 2006; Tanno and Willcox 2006; Weide et al. 2018; Willcox 2012).

Increasing exploitation of various plant species during the Transitional Neolithic could comply with the emergence and development of grinding stones in the central Zagros. However, one can see a gradual change in grinding stones through time. Although these implements were used for processing different items, including pigments, plant-based food preparation stands as their major function (Wright 1991; 1994; 2000). Grinding stones were used much earlier in the Levant and even in the western Zagros. Recent excavations at Palegawra revealed a few samples from Epipaleolithic contexts (Asouti et al. 2020). The technological development of grinding stones is not yet well-known in the Central

Zagros. Nevertheless, a general change from deep mortars to shallow quern-shaped styles can be assumed, supporting an increasing reliance on cereals over a long time spanning transitional Neolithic through late Neolithic. This has been shown at the site of East Chia Sabz (Darabi 2016a).

We may consider a similar diachronic trend in the regional proportion of sickle blades, among other stone tools that are generally set within the so-called 'pre-M'lefatian' (Nishiaki and Darabi 2018) and 'early M'lefatian' industries (Kozłowski 1999; Kozłowski and Aurenche 2005). The former presents a combination of Late Epipaleolithic and Early Neolithic tool types, while the latter indicates an increasing use of pressure technique for detaching blades/bladelets. This may suggest a techno-typological standardization and an apparent progress in craft specialization through time which is consistent with general socio-economic developments. Across the eastern Fertile Crescent, a gradual transition is seen towards pressure percussion as the most widely used knapping technique, and thereby predominant in blade/bladelet production, whereas the western Fertile Crescent displays an application of indirect punch technique and the detachment of blades from unipolar and later bipolar cores resulting in the predominance of various types of projectile points (see Kozłowski & Aurenche 2005).

At a regional scale, research has focused on the emergence of domestication and sedentary life is seen in the Zagros, overlooking social aspects of communities by the onset of the Holocene. It is believed that the beginning of sedentary life paved the ground for initial individual ownership and thereby early trends from egalitarian to non-egalitarian societies in the Central Zagros (Darabi 2016b). Nevertheless, the Transitional Neolithic period is marked by collective or communal efforts, either economically or socially, rather than household activities. The current data upon which one can address social or ritual areas of communities in the central Zagros has hitherto been restricted to the evidence gained from recent excavations at Asiab where the remnants of a large semi-subterranean structure were exposed (Bangsgaard et al. 2019; Darabi et al. 2018; 2019; Richter et al. 2021). The structure, with a likely interior space of approximately 78 m², had first been constructed by digging a cut into the underlying natural sediment. The interior space features a bench-like pisé wall that followed its circular shape (Fig. 5). Moreover, a cache of red deer antlers and wild sheep horn cores were incorporated into the bottom of the pisé feature. The floor was seemingly replastered with lime while a remaining depression was also painted with red pigment and a complete horn core from a wild goat was placed into it (Richter et al. 2021). Another significant finding was the discovery of a pit containing a cache of nineteen wild boar crania and mandibles, tightly packed on top of, and next to, each other and intentionally arranged in an east-west direction (Bangsgaard et al. 2019).

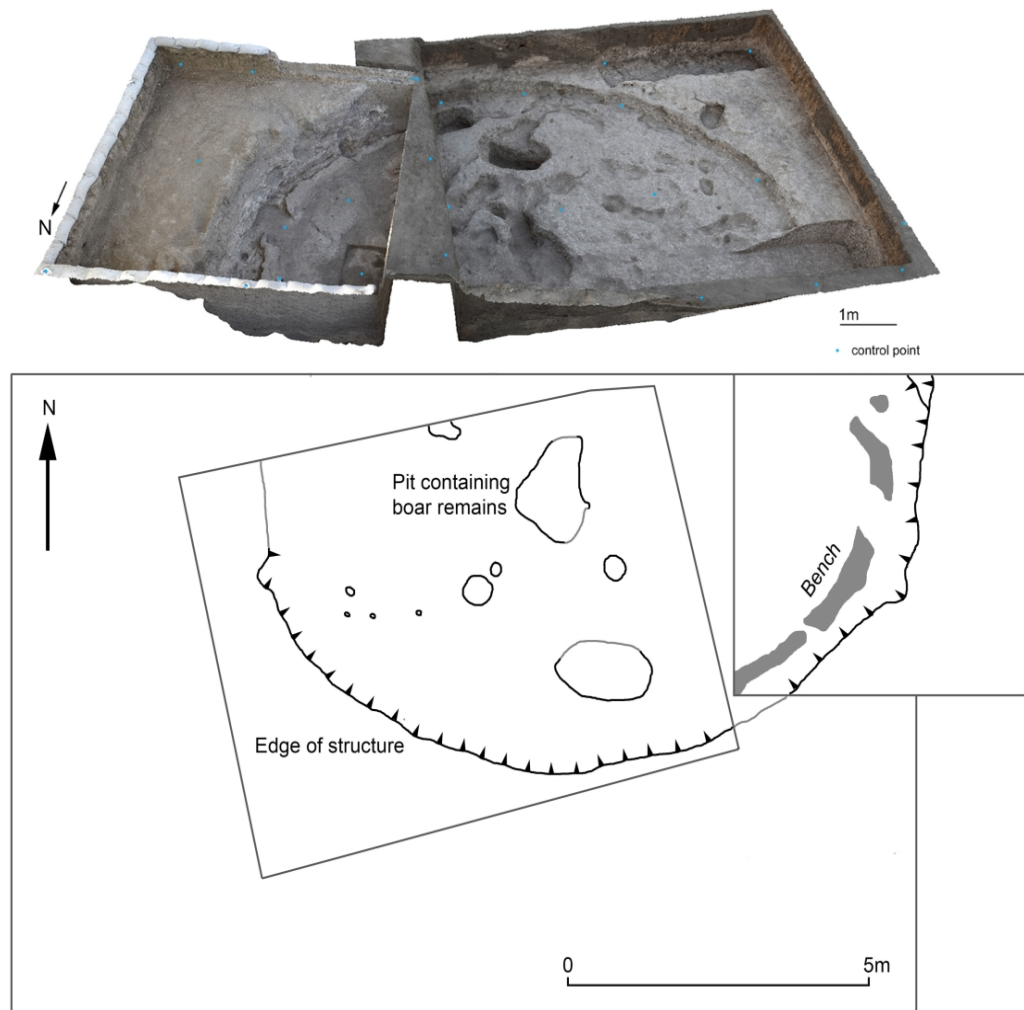


Fig. 5. The semisubterranean communal structure exposed at Asiab (after Bangsgaard et al. 2019:445, fig. 2)

These specific finds, including the general layout and internal features and installations, evidently share similarities with the communal buildings previously known from PPNA sites in the Levant (e.g., Jerf al-Ahmad, Tell ‘Abr 3) and in Anatolia (e.g., Nevalı Çori, Göbekli Tepe, Karahan Tepe, Hallan Çemi). Across the Zagros, a circular structure with a deposit of skulls of wild goats and wing bones of raptors has been reported from Zawi Chemi Shanidar (Solecki 1977). Due to the discovery of communal buildings at a notable number of sites we may suppose them to be a cultural marker of the 10-9th millennia BCE in western Asia. Most scholars have considered them as places for collective events such as meeting, ceremonies or ritual activities (Banning 2011; Finlayson et al. 2011; McBride 2015; Watkins 2004). Some have also taken them as an indication of ideological and ritual change in the course of transition to the Neolithic (Cauvin 2000; Hodder 2018; Verhoeven 2002; Wengrow 2011). In fact, these very early public architectural spaces have also represented the initial symbolism of Neolithic (see Watkins 2004).

In the case of Asiab, the animal deposition could be an indication of feasting and commemorative memory and collective membership in the community. The process of constructing such a large building—from digging out

the soil to putting in place its roof—would have surely been a result of an intensive collective work. Some scholars have advocated that such early feasting events provided communities with maintaining their social cohesion (Kuijt 2000; Zeder 2011). Were the structure not heavily damaged by bio-turbation and especially animal burrows through time, it could have contributed an even better knowledge of the social aspects of the Transitional Neolithic in the Zagros region. Nevertheless, this communal structure at the site indicates that communal buildings were not restricted to just the western or northern Fertile Crescent and that they had also synchronously emerged in the eastern Fertile Crescent together with their counterparts in other regions. On the one hand, it seems that people of Asiab and, at a larger scale, the central Zagros, engaged in a system of wide regional social and cultural interactions, in which similar social and cultural concepts and ideas were communicated between different regions. On the other hand, this highlights a change in ritual and social aspects of the transitional Neolithic communities prior to the emergence of low-level food production, including pre-domestic cultivation and animal management in the central Zagros and, more broadly, the eastern Fertile Crescent.

4. Concluding remarks

While there are undoubtedly general forces that pertain to all examples of agricultural origins wherever it occurred, the progression from food resource management, low-level food production, domestication and finally to an agricultural economy and village-based way of life in any one area is profoundly influenced by a combination of highly localized factors that shape the timing and nature of these developments in distinct ways (Smith 2001; Zeder 2015). This shows the significance of a region-specific perspective which undermines the application of any Levantine-based approach or chronological terminology to the Zagros region. As compared with the Late Epipaleolithic, new features are seen during the Transitional Neolithic in the Central Zagros. The border line between these two periods is much sharper than the Levant, bringing to the fore the idea that the initial communities of the Holocene were creative in shaping their new worlds.

To date, the available datasets suggest that the Transitional Neolithic period saw gradual diachronic changes in various domains, though they are not yet well-traceable through current evidence. While settlement patterns and technology of the communities underwent a gradual change over this time period, a radical change in subsistence towards low-level food production seems to have happened over centuries, most likely during the second half of the 9th millennium BCE. This trajectory divides the Transitional Neolithic into two subsequent phases. In this regard, the early Transitional Neolithic (ca. 9,800-8,500 BCE) saw initial attempts towards gradual change in the degree of mobility from short-term to seasonal settlements and the predominance of the so-called pre-M'lefatian lithic industry as well as an unprecedented high degree of exploitation of wild progenitors of early domesticates.

The onset of this period also witnessed the emergence of communal buildings, synchronously with other areas in west Asia, as attested by the case of Asiab, suggesting the first symbolically-rich built environment in the region. We may therefore highlight the possible roles of these structures in shaping newly

agglomerated communities and how they could have helped with social cohesion and collective decision-making or holding communal feasts or ritual events. Furthermore, the appearance of the communal buildings can be considered as a social outcome of the newly established ways of interaction between humans and their environmental resources during an era when ecological knowledge accumulated over generations. In the Central Zagros at least, the extent to which the presence of communal buildings and thereby collective feastings might have influenced the subsequently shift to resource management and low-level food production cannot be precisely determined, however.

With regard to the late Transitional Neolithic (ca. 8,500-8,000 BCE), current data attests to a change in human-environment interactions represented by pre-domestic cultivation and animal herding. Although one may consider multiple causes triggering this radical change toward domestication and, more broadly, the Neolithization process of the Central Zagros, intensive interactions between humans and domesticable species should have played an important role in this regard. However, it is argued that increasing pressure on environmental resources and resulting shortages, resulting either from population growth or climatic deterioration, seems to have forced people to broaden their diet to include alternative food supplies in the region. In fact, this suggests an early creative resilience by communities over the first two millennia of the Holocene.

Chronologically, one finds early and late sub-phases of the Transitional Neolithic as periods that roughly correspond to PPNA and EPPNB in the Levant where a generally similar process socio-economic transformations can be observed, especially early experimentations with cultivating cereals and their subsequent full- domestication. As noted above, however, different techno-typological criteria of the overall archaeological inventories in the Levant and Zagros highlight distinct but interconnected developments in the process of Neolithization. In the Central Zagros, archaeological evidence such as settlement patterns, lithic technologies and changes in diet clearly show region-specific pathways towards Neolithization, although a general coinciding trend from foraging to cultivating/herding occurred across West Asia. The emergence of communal structures in this vast region also suggests an early cultural interconnectedness, an issue that has also recently been shown by genetic data (see Lazaridis et al. 2022). Generally speaking, the Transitional Neolithic spans a phase of exploration, early experimentation with surrounding resources, and increasing social learning by the Zagros inhabitants, who laid foundations for true domestication, agriculture, and a village-based way of life during the succeeding period of the Early Neolithic (ca. 8,000-7,000 BCE).

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6. Endnotes

1. The main current issue that might be critical to the hypothesis is that population increase is not yet well-evident in the region where a few sites are currently known. Estimation of population density and settlement pattern is facing with multiple constraints. Firstly, we need to keep in mind that small alluvial

intermountain valleys or plains of the central Zagros have been easily subjected to massive alleviation over the Holocene era (also see Hole 1987). Geomorphological investigation by Brookes et al. (1982) showed more than five meters of alluvial sequence along cutbank sections of the Mereg stream, the Mahidasht Plain, and its implications for archaeological survey. Imagine that if the Braidwood's team had not accidentally stopped their vehicle on the top of Asiab, this significant site would have remained unknown to us as it is a flat area buried by the sediments. Secondly, subsequent larger post-Neolithic occupations should have buried some of the early Neolithic sites, again making their discovery difficult in the reconnaissance surveys. Thirdly, the scarcity of Neolithic settlements has also been affected by recent developmental activities that overwhelmingly changed the landscape. In fact, this makes sense when more than 20 pre-pottery mounded sites were located by Braidwood and his team (Hole 2011, pers.comm.) but most of them are no longer visible in the region. However, the more intensive surveys are applied the more Neolithic sites are located in the central Zagros. At a wider geographic scale, shorter fertility intervals and thus an increase of population has been assigned to the beginning of Neolithic (see Bocquet-Appel 2011). Generally speaking, it seems reasonable to think of increasing population when some societies started to settle down since the 9th millennium BCE onwards, a phenomenon that is still somehow mirrored by growing numbers of the sites through time. Lastly, this argument may be reminding this impression that 'absence of evidence is not evidence of absence'.

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هزاره‌های خلاق: برجسته‌سازی نوسنگی انتقالی (۸۰۰۰-۹۸۰۰ ق.م.) در زاگرس مرکزی

حجت دارابی^۱

دانشیار گروه باستان‌شناسی، دانشکده ادبیات و علوم انسانی، دانشگاه رازی، کرمانشاه، ایران.

چکیده

نخستین پژوهش‌های مرتبط با شروع کشاورزی و روستانشینی در زاگرس مرکزی به سالهای ۶۰-۱۹۵۹ و توسط رابرت بریدوود برمی‌گردد. با این حال، تغییر مسیر پژوهش‌ها به سمت منطقه لوانت (شامات) باعث شد تا به مدت چندین دهه در هاله‌ای از ابهام قرار گیرد، تا اینکه مطالعات اخیر یکبار دیگر نقش آن را در روندهای نوسنگی‌شدن در غرب آسیا برجسته نمودند. برخلاف لوانت، که در آن تغییر تدریجی و بلندمدت از دوره فراپارینه‌سنگی به نوسنگی رخ داده است، مرز بین این دو دوره در زاگرس مرکزی به مراتب مشهود است؛ به طوری که طی دو هزاره نخست دوره هولوسن (هزاره دهم و نهم ق.م.) ویژگی‌هایی در این منطقه دیده می‌شود که سابقه نداشته‌اند. این بازه زمانی در واقع به عنوان دوره‌ای بنیادی مورد نظر است که در منطقه زاگرس مرکزی تا حدود بسیار زیادی ناشناخته باقی مانده است. با در نظر گرفتن مدارک و شواهد جدید، این دوره زمانی در این مقاله تحت عنوان «نوسنگی انتقالی» (۸۰۰۰-۹۸۰۰ ق.م.) مورد توجه و بررسی قرار گرفته است. مجموعه داده‌های موجود نشان می‌دهند که پیرو بهبود شرایط محیطی در پایان دوره دریاس جوان، جوامع منطقه روی به سکونت‌های کوتاه مدت، انجام آیین‌های جمعی و اتکای روزافزون بر نیای وحشی اولین گونه‌های گیاهی و جانوری اهلی شده آورده‌اند. این زمان مصادف با برهنک‌کش بالا با منابع محیطی بوده که این امر در افزایش دانش و شناخت مردم از زیست‌بوم پیرامون آنان نقش مهمی ایفاء نموده است. می‌توان گفت که در طی زمان طول سکونت در مکانهای مساعد افزایش یافته و این موضوع به افزایش تدریجی جمعیت در هزاره نهم ق.م. منجر شده است. این موضوع در عوض خود را در فشار تدریجی و البته روزافزون بر روی منابع غذایی منعکس نموده است؛ هرچند این فشار محیطی ممکن است ناشی از رخداد‌های احتمالی اقلیمی هم بوده باشد. مدارک باستان‌شناسی بیانگر این است که از اواسط هزاره نهم ق.م. تغییری در سازوکارهای معیشتی جوامع به سوی تولید سطح پایین غذا رخ داده است. در واقع، این امر نوعی اتفاق فرهنگی-محیطی بوده که منجر به توسعه رژیم غذایی شده است. زاگرس مرکزی شاهد رفتارهای خلاقانه جوامع طی مراحل اولیه و ثانویه این دوره نوسنگی انتقالی بوده است و این امر شالوده‌ای محکم را برای زندگی واقعی نوسنگی در هزاره هشتم ق.م. فراهم نموده است.

واژه‌های کلیدی: زاگرس مرکزی، نوسنگی انتقالی، نوسنگی شدن، دانش محیطی، تولید سطح پایین غذا.

