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The North and South Central Plateau of Iran During the Third and Second Millennium BCE (3200-1500 BCE) [*1]

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(153-180)

Abstract

The societies of the northern and southern zones of the "Iranian Central Plateau" flourished during the last quarter of fourth millennium BCE. This floruit was marked by the rise of complex social systems, long distance trade, and new systems for the management of economic activities, such as the "proto-Elamite writing system" (Vidale 2018; Helwing 2019; Fazeli Nashli and Nokandeh 2019). This evidence supports the view that the inhabitants of the Iranian Plateau during this time were connected to each other, represented by a relatively uniform writing system and similar economic organization. However, nowadays we know that the similarity of the "Grey Ware Culture" occurring in Proto-Elamite sites of the north-central Plateau such as Sofalin, Qoli Darvish, Meymanatabad and Sialk also suggests inter-regional contact, beyond the "Proto-Elamite phenomenon" during the last quarter of fourth millennium BCE. The population of the whole of the north Central Plateau appears to have dispersed during the third millennium BCE and current information suggests that most Chalcolithic settlements were gradually abandoned beginning around 3400 BCE, and that the hiatus in settled occupation continued throughout the third millennium BCE. This may be connected with climatic events during the last quarter of the fourth millennium BCE, characterized by aridity and increased aeolian activity, which destabilized the agriculture system. As Vidale postulated (Vidale et al. 2018) the social evolution of the Central Plateau, based on non-centralized networks during the Chalcolithic period and were extinguished shortly after 3000 BC but shaped again shortly which was different from the previous period. This paper will summarize the findings of these excavations and propose a chronological framework for these social and cultural changes from the late fourth to the early 1st millennia BCE. In this paper we document the intra-regional societal developments and inter-regional material culture connections that made the third and second millennia BCE such a dynamic time.

Keywords: North Central Plateau, Bronze Age, Pottery, 4.2ka event. Qoli Darvish, Pardis, Estark-Joshqan.

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Introduction

In two papers co-written with one of the authors of the present investigation (HFN), Armin Schmidt and Massimo Vidale discussed why the proto-urban population of the Central Plateau of Iran never developed a state level society during the late fourth and early third millennia BCE, but significantly mentioned the diversity of complexity of social system during the early third millennium BCE (Schmidt et al. 2011; see also Vidale et al. 2018). Recent archaeological research into Bronze Age sites from both the northern and southern zones of the Central Plateau forces us to revise our earlier conclusions and while the collapse of proto-urban system collapsed during the dawn of third millennium BC but new socio-economic system shaped the societal structures of the central plateau societies. Whereas once it was thought the Central Plateau was largely uninhabited for most of the Bronze Age, new surveys and excavations have instead noted that this region had large, multi-period settlements displaying a material culture influenced by the Proto-Elamite expansion from southwestern Iran, the Transcaucasian expansion from northwestern Iran, and the "Grey Ware Culture" from northeastern Iran.

Recent research has demonstrated that both Transcaucasian and local cultures co-existed in this region from ca. 3000-2400 BCE. Within the Qazvin Plain, for example, we see the existence of the Transcaucasian culture from the beginning of third millennium BCE and also in some areas such as the Qom plain at Yousef Khan Khaveh, where this culture appeared around 2700 BCE (Sarlak 2020). In some other areas, such as the Eastern part of the Zayandeh-Rud River Basin in the southern part of the Central Plateau, we see how the Central Zagros, southwestern Iran, and the eastern parts of Iran were connected during the Early Bronze Age (Ilkhan et al. 2019; Shojaee-Esfahani and Rafi'i-Alavi 2020; Rafi'i-Alavi and Shojaee-Esfahani 2020; Rafi'i-Alavi et al. 2021). The existence of high-status goods such as gold, silver, lapis lazuli, ivory, marble vessels, and ceremonial axes at Central Plateau sites during the third millennium BC signifies how the people of past communities rebuilt new social differentiation and economic specialization after the "Proto-Elamite period." However, while we have some limited information regarding the third millennium BCE settlement density, the nature of the Central Plateau has changed dramatically with the rise of cultural complexity and super-regional contacts, increased complexity in mortuary ritual, craft specialization, the emergence of monumental buildings as well as potential economic specialization during the second millennium BCE. To understand the long-term communication, inter-regional contacts, economic specialization and settlement patterns of the Central Plateau we will review evidence from the plains of Qazvin, Tehran, Qom, Kashan, and Varzaneh throughout the third and second millennia BCE (Table 1, Fig 1).

Figure 1 displays the most important Bronze and Iron Age sites of the Central Plateau (also Table 1), which have been used to establish a chronological framework. The term "Iron Age" addresses social and cultural changes occurring from ca. 1500 BCE onward with the introduction of iron objects in the Central Plateau of Iran. The main problem is that iron was only in widespread use after 1250 BCE (Pigott 1980), and most "Iron Age" social and political changes occurred during the first millennium BCE, leading one of the authors (BR) to argue that the Iron Age started around 1000-900 BCE. Nevertheless, if we focus on the introduction of iron metallurgy, the oldest iron objects found in Iran are from Tepe Sialk Cemetery A with the monochrome gray-to-black burnished ware of the Tepe Giyan I style (Danti 2013). In addition, a number of iron objects and a large volume of slag and iron metal pieces were found across an extensive excavation area, from the surface layers and inside the architectural remains at Qoli Darvish of the IV to VI period (Fig 2). Three iron objects in particular were found from specific cultural layers of Qoli Darvish; the first object is the remains of an iron vessel in the form of a bowl, which was obtained from layer 1 of the VI period. Two ^{14}C dates from this layer indicate an absolute date-range of 1528-1426 BCE and 1531-1429 BCE (Sarlak 2020). Three iron artifacts, the remnants of metallurgical furnaces, and large amounts of slag and iron ore fragments from archaeological layers and substrates have been recorded at Qoli Darvish. All of this evidence supports the conclusion that iron came sporadically into use already from the beginning of the "Final Bronze Age" in the Central Plateau.

On the other hand, the chronology proposed by Michel Danti (2013) is valuable for understanding long term socio-political changes in northwestern Iran. According to Danti, the second millennium of northwestern Iran can be divided into the Middle Bronze Age I (2100-1900 BC), Middle Bronze Age II (1900-1700BC), Terminal Middle Bronze Age II (1700-1600 BC), Middle Bronze Age III (1600-1450 BC), Late Bronze Age (1450-1250), Iron Age I (1250-1050) and Iron Age II (1050-800 BC). Also, Hamid Fahimi (2019) excellently reviewed the beginning of Iron Age in Iran and argued that such socio-political changes and technological innovation appeared in the late second millennium BC rather than middle of second millennium BCE. Thus, although iron objects were used widely in the late second millennium BCE in Iran, current information indicates that iron objects were used earlier in the Central Plateau than in northwestern Iran, by perhaps three hundred years in some cases. Such an argument needs further research but it seems iron objects appear in the Central Plateau of Iran at ca. 1500 BCE, meaning that the end of the Bronze Age falls during the middle of the second millennium BCE. Of course, the "Iron Age" of Iran should be defined by a multitude of factors – socio-political complexity, the resurgence of inter-regional exchange, re-adoption of writing, and complex craft technologies such as iron, mass-produced pottery, etc. – but the latter half of the second millennium BCE is a reasonable period for these changes to begin.

The Northern Central Plateau from 3200 to 1500 BCE:

The Qazvin plain

The Qazvin plain was important during the fourth millennium BCE, but lost its significance during the third millennium BCE. Within the Qazvin plain the decline of sites began from ca. 3400 BCE, with only a few permanent settlement sites known to have been occupied on the plain until the last quarter of the third millennium BCE. After the abandonment of Ghabristan around 3450 BCE (Pollard et al. 2012), there was a considerable gap before the first few sites (e.g., Sagzabad) were reoccupied during the Middle Bronze Age. To the southwest of the Qazvin Plain in the hilly flanks of the Zagros, the site of Shizar exhibits continuous settlement occupation during the fourth and third millennium BC without any gap, continuing even into the second millennium BCE (Pollard et al. 2012).

The Early Bronze Age at Shizar and related sites starts from 3000 BC and continued until 2500 BC and is characterized by the prevalence of Transcaucasian-style ceramics. Shizar and sites such as Doran Abad exhibit clear connections with sites in northwestern Iran such as Yanik, Kul Tepe, Haftavan, and Geoy on the one hand, as well as Godin, Pisa, and Gorab in the Central Zagros on the other (Fazeli Nashli et al. 2013). The two sites of Shiretal (Asgari n.d.) and Shizar are both located along the northern and southern sides of the Qazvin plain, which supported small villages with continuous occupation throughout the third millennium BCE. It is important to note that these sites are quite small ($\leq$ 2 ha). That these are the only two sites in the region dating to this period shows how dramatically population structure shifted from the early proto-urban sites of the fourth millennium to a new lifestyle focused on small-scale village agriculture in the Qazvin plain during the third millennium BCE (Vidale et al. 2018, Fazeli Nashli and Abbasnezhad Sereshti 2005).

During the second millennium BCE, the Qazvin plain regains its importance as a locus of settlement occupation, with sites such as Sagzabad (ca. 12 ha) re-occupied from ca. 2000 BCE (Pollard et al. 2012). These sites feature both polychrome (Fig 3) and monochrome wares, including Grey Wares and painted Buff Wares. The Urmia pottery-style is a painted monochrome or polychrome ware on red or dark orange ground, and is observed to have been widely used during the first half of the second millennium in the north Central Plateau at sites including Sagzabad and Shiretal, and in the southern part of the Central Plateau at sites such as Qoli Darvish (Azizi Kharanaghi and Moradi 2011; Velayati et al. 2017; Sarlak and Hessari 2018). This "Urmia Style" was first identified by Edwards (1981) based on the excavation of Haftavan VIB; Stronach assigned this horizon to the Middle Bronze Age, dating its origins to ca. 2200 BCE and its diffusion in the Central Plateau during the 19th and 18th centuries BCE (Edwardz 1986; Velayati et al. 2017).

The Tehran plain

The Tehran plain has a long history of human occupation beginning from 6000 BCE with the rise of cultural complexity, increasing population, the emergence of craft specialization and long-distance trade during the fifth and fourth millennia BCE (Vidale et al. 2018; Fazeli Nashli et al. 2013; Bernbeck et al. 2002). However, after the Proto Elamite period ca. 2900/2800 BC, there is a long gap of occupation within the plain until the 16th century BCE. The site of Morteza Gerd excavated by Erich Schmidt in the 1930s may be an exception as the materials housed at the Penn Museum suggest a Middle-Late Bronze Age date (personal communication with Christopher Thornton), but the site is lost to urban sprawl and the excavations were never published. More investigation will certainly reveal new insights regarding the post Proto-Elamite collapse within the region. Certainly, the excavations at Tepe Pardis have demonstrated the reoccupation of the plain during the first half of the second millennium BCE. The cemetery site of Tepe Pardis was excavated in two seasons in 2005 and 2006 and provide the basis on which to construct a regional model of the Tehran plain during the middle of the second millennium BCE (Fazeli Nashli et al. 2007). In the space of one hundred square meters of excavated area, the remains of 34 humans and animals, two cattle and one horse, were found dating to mid second millennium BC.

The most common method of burial in the cemetery at Tepe Pardis, like other related cemeteries, is an inhumation in the flexed position, but also occasionally burials with an upright position were uncovered. In addition to the human burials mentioned above, three animal burials were found from the excavation of Tepe Pardis cemetery. The animals include two cattle and one horse that were buried among the human burials. The first cattle burial was placed lying on its back in an east-west direction and facing south. The burial lacked any architectural structure and was surrounded by three human burials. It is noteworthy that a large jar was placed under the neck of the cattle. It is important to note that the cows and horses buried in this cemetery are both animals that have positive associations in ancient Iranian mythology. In both attested and reconstructed Indo-European myths and legends, the horse is mentioned as a special symbol of the god of the sun, the god of the moon and the god of the wind. In the way of some gods, only horses were sacrificed (Christensen 1941). In the Aban Yasht of the Avesta, Houshang, Jamshid, Zahak, Fereydoun, etc., each sacrificed one hundred horses, a thousand cattle and ten thousand sheep for Nahid. In ancient Iranian mythology, cattle were considered the origin of all creatures and the first to be created by Ahuramazda (Pourdavood 1969).

We should consider that cattle would have had high economic and ritual values and so such burials suggest a sacrificial practice during the Bronze Age in the central plateau of Iran. The second animal burial category, i.e., the horse, was found interred with an east-west orientation and the body on its left side. Beneath the horse's skull was a small grey cup. Animal burials, especially of horses, are known in the Iron Age of Iran and have been reported from Marlik, Hasanlu, Babajan and Godin Tepe (Talaei 1995) and in the northern region of Kloraz and Sands region of Gilan (Fahimi 2002). But this burial represents the first instance of such a phenomenon on the Central Plateau, and also predates all of the aforementioned examples.

Most of the burial objects of Tepe Pardis cemetery are ceramics. There are bronze objects as well, but they are very limited in number compared to the pottery. Found only from five graves, these objects included daggers, arrowheads, mace heads, pins, sickles, fork-like objects, rings and wires. In addition to these objects, a pair of gold earrings was found, as well as a necklace’s worth of beads, mostly made of limestone and agates. From the Tepe Pardis cemetery, on average, between two and seven pottery vessels were found in each grave, which were placed above the head and at the end of the grave (underfoot). In particular, except for one case, most of the graves featured a beaker placed under the deceased's head and the rest of the other objects were placed under the feet.

Except for two examples (2.17%) which are hand-made, the rest of the ceramics (97.83%) have been produced by the wheel-making technique. Except for a few examples of buff and brown ware, most of the ceramics are grey ware types. The grey ware group can be divided into three subgroups of ordinary grey pottery with 64.13% (59 pieces), light grey ware with 19.66% (18 pieces) and black-grey ware with 13.40% (12 pieces).

The wares are typically undecorated, but what decorations are found include burnished, engraved, appliqued and combinations of appliqued and engraved motifs.

Of these decorations, the most common technique is burnishing the surface of the vessel. This type of technique, which is executed exclusively on grey ware pottery, includes geometric patterns that, through intersecting and diagonal lines, form successive rhombuses within two horizontal stripes. This type of technique is mostly seen on the shoulders and middle sections of the vessels and is most often observed on the vessel form class that includes beakers with vertical handles, cups, pitchers, and teapots.

The second most commonly used decorative technique at the Tepe Pardis cemetery is engraving. Most of the carved designs are created in a simple and limited way and principally include simple lines arranged in one or two simple bands around the rim or in the middle of the small hemispherical bowls and cups. In a unique example, the entire exterior surface of a cup was decorated in this way. The motifs include oblique and vertical lines as well as carved patterns in the form of wheat clusters that are created around the cup. Finally, the applique technique, which was observed on only one example from Tepe Pardis. This motif features very small button-like protrusions under the edge of the rim of a storage jar. In a few examples, the applique and engraved techniques are used in combination, with the resulting motif resembling a nipple. The most important vessel forms of the Tepe Pardis cemetery include beakers, cups with flared or simple rims, sometimes with a vertical handle, pitchers, tripods, spouted jars, conical bowls with flat bases, small hemispherical bowls and cups, strainer vessels, ledge-rim jars and handled pitchers with open spouts (Figs 4-5). Typologically, within the Central Plateau of Iran, the ceramics of Tepe Pardis are most comparable with those found at Sagzabad, Khorvin, Qeytariyeh, Sarm and Qoli Darvish periods V and VI in which the most common types are button-like base beakers (Fig 6). Outside of the Central Iranian plateau, these beakers have been found at Hasanlu V, Godin (Young, 196۹), Giyan I, Dinkha III, and Geoy Tepe (Medvedskaya 1982, Danti 2013), which are quite comparable with Tepe Pardis. Another important vessel category of this period is spouted jar vessels which are sometimes referred to as teapots. In general, spouted jars are divided into two groups: unbridged pouring spouts and bridged pouring spouts. Among the ceramic forms, beakers and teapots have been reported from almost all excavated sites in the region dating to this period. Vessels with button like base were not observed at Sialk B, however, but were more common in other areas. Similar cups were used extensively in Sialk A, Qeytariyeh, Khorvin and Pardis. The tripod vessels were common in Sialk A and B, Khorvin, Qeytariyeh, Saram and Sagzabad. Tripod-type vessels are observed at Sialk A and B, Qeytariyeh, Saram and Sagzabad. Khorvin-style ceramic forms are much more similar to those Tepe Pardis than those of other sites. The data from Tepe Pardis are furthermore comparable with assemblages known from more distant sites such as Archaic Dehistan pottery from Bidak, Tepe Rezvan (Sharifi and Motarjem 2014), Besh-Dareh, Ashkhaneh Hospital (Hejabri Nobari and Dana 2018) and; Dasht Kalpoush Valley (Vahdati 2018, 2020) and Jayran Tepe (Vahdati 2016).

The central and southern Central Plateau

Human occupation of the southern Central Plateau from 2700 BCE onward is evidenced by the sites of Qoli Darvish and Yousef Khan Khaveh in the vicinity of Qom, and several sites in the Varzaneh region west of the Gavkhuni Wetlands (Esfahan region). The Zayandeh-Rud River, which feeds the Gavkhuni Wetland, has provided very fertile soil for agricultural activities and grazing of animals from prehistoric times until the recent past. The areal extent of the Gavkhuni Wetlands is estimated at 47,000 hectares, but it varies annually based on the amount of water entering the lagoon. The wetland is located 130 km southeast of Esfahan, 30 km east of Varzaneh (the closest city to the wetland), and Its average altitude is 1470 meters above sea level. The area of sand dunes adjacent to the western part of the wetland measures approximately 20,000 hectares, stretching 50 km from near the city of Varzaneh to a few kilometers southeast of the village of Hasanabad. Many archaeological sites have been recorded along the western edge of the wetland, dating principally from Chalcolithic to the Islamic Period (Esmaili Jelodar 2012; Shojaee-Esfahani and Rafi'i-Alavi 2020). Esmaili Jelodar's survey revealed a population increase in this region during the third millennium BCE, with nineteen sites related to the

Bronze Age attesting to the significant increase in population and settlement size during this period. The largest site of this period in terms of size is Saba 22, ca. 50 ha, and the smallest sites are Saba 38 and 72, ca. 1 hectare (Esmaili Jelodar 2012). We assume site sizes such as Saba 22 should be at least 10 ha. Although nowadays the region is a desert land (named the Rigsara, or Sand Hills), during the Bronze Age, the Zayandeh-Rud River passed through the area of Bronze Age settlement concentration, in which both the lake and also the river provided a suitable environment for human occupation. The presence of third millennium settlements, some of which are partially buried under the dunes at the west of Gavkhuni, indicates that these dunes post-date the Bronze age.

The earliest Bronze Age site in the region is site Saba 9, dating provisionally to 2700-2500 BCE. Shahr e-Saba/Saba 9, near the Gavkhuni wetland, is similar to several sites surrounded by sand dunes and its geographical position is 52° 40’ 8.44” E and 32° 18’ 3.43” N at an altitude of 1470 meters above sea level. Three types of pottery were found on the surface, including Buff Ware, Brown, and Grey pottery similar to that found at Qoli Darvish and Tappeh Sofalin. During the survey at Saba 9, two pendants and a large number of beads made of bone, limestone and perhaps ivory were found in the northern part of the area, all of which support the inference of regional and long-distance trade during the third millennium BCE. The finished and semi-finished beads scattered on the site is a further confirmation of the site’s chronology dating to the third quarter of third millennium BCE (Esmaili Jelodar 2015). Tepe Kopandeh is situated in the Dasht e-Ben Rud district of southeastern Esfahan province, in the eastern part of the Zayandeh-Rud river basin. Fariba Saeidi directed one season of excavation at the site in 2006 for her Ph.D. thesis (Saedi Anaraki 2009) with a short report published in 2013 (Pollard et al. 2013).

We summarize here the cultural sequence of the site based on the ceramic typology indicating the following periods: 1) Kopandeh I: Early Bronze Age I-II (2600-2500 BCE), with ceramic types comparable to Godin III:6 and Susa IV; 2). Kopandeh II: Middle Bronze Age (2200–1800 BCE), with ceramics comparable to Godin III:4–2, Tall-e Teimuran in Fars and Koh-Garin in Lorestan; 3) Kopandeh III: Late Bronze Age (1800–1600 BCE), with mixed deposits related to those of the previous phase. The material culture of Tepe Kopandeh indicates cultural connections with the Zagros, Khuzestan, and Fars during the mid-third millennium BCE (EBA II). After that there is a gap on the site in Kopandeh; Kopandeh II includes Middle Bronze Age materials that reveal contacts with the southern part of Iran, especially Susa in Khuzestan and Kaftari and early Shogha-Teimuran periods in Fars (Saeidi Anaraki 2009: 133) like Tall-e Teımuran (Pollard et al. 2013: 40). At Kopandeh III, the settlement experienced its final phase which, compared to the other periods, is relatively unknown. The ^{14}C dates available relate to the beginning of the EBA II phase and the end of the LBA at Tepe Kopandeh. The dates given are 2977-2054 cal. BCE at 95% for the start of the Bronze Age (2387-2086 cal. BCE at 68%, median 2269 cal. BCE) and 1857-986 cal. BCE at 95% for the end (1742-1489 cal. BCE at 68%, median 1609 cal. BCE). Survey and excavation within the Kafarved-Varzaneh plains between 2018-2019 and in 2020 conducted by Babak Rafi’i-Alavi and Ali Shojaee-Esfahani in the Gavkhuni Wetlands discovered many Early Bronze Age sites, dating from 2700 to 2200 BCE (Shojaee-Esfahani and Rafi’i-Alavi 2020). Two Early Bronze Age sites (Sites 013 and 051) were excavated in 2018 and 2019 (Rafi’i-Alavi and Shojaee-Esfahani 2020; Rafi´i-Alavi et al. 2021). At Site 051, Trench 2, Feature 4, the excavators have found an important grave. The body was placed in a flexed position and the material goods included parts of a sheep, silver, gold, pottery, marble vessels, a ceremonial axe, carnelian beads and a gold abr. An interesting point is that above this male, around 25-26 years of age, the remains of an infant were found above the skull (Ilkhan et al. 2019). Two pieces of broken painted pottery from Site 051 help secure the site within a comparative chronology. The depiction of an animal and eagle painted on the jar date the site to the first half and middle of the third millennium BCE, similar to Godin III:6-5 of the Posht-e Kuh and Pish-e Kuh, Susa IV, the Jalyan cemetery in Fasa plain, as well as some designs found on chlorite stone vessels in southeastern Iran and Mesopotamian seals from the Early Dynastic period. The ceremonial axe is also comparable to Susa and the city of Ur in Mesopotamia and can be dated to the second half of the third millennium BC (Rafi’i-Alavi et al. 2021) (Figs 7-8).

In general, it seems that there was a period of flourishing in the eastern part of the Zayandeh-Rud river basin from 2700 to 2200 BCE, when the rest of the Central Iranian Plateau experienced a sharp decrease in settlement sites. The settlement sites along the western part of the Gavkhuni playa could change our understanding about the Early Bronze Age in the interior of the Iranian Plateau and help us to establish a more accurate picture of the period's settlement system.

Qom plain

Within the Qom plain, Qoli Darvish is one of the largest Bronze Age sites located in the middle part of the Central Plateau, some 6 km northeast of the provincial city of Qom. The site rises 5.20m above the plain level and extends 4.47m below the surface (Alizadeh et al. 2013; Sarlak 2020). The total area of the mounded site appears to have extended about 30 ha during the second millennium BCE, but during the early Iron Age (from the middle of second millennium BCE onward) it was much larger (ca. 100 ha). Today, farming and construction activities have severely damaged the site and the remaining mounded area has decreased to fifteen hectares. The site was excavated over 14 seasons under the direction of Siamak Sarlak from 2002 to the present by the Iranian Center for Archaeological Research (ICAR).

The site has six main strata, beginning from ca. 3120 BCE and ending ca. 1500-1400 BCE (Strata II to VI with some subdivision, see Table 1). The chronological model boundaries proposed by Pollard (Pollard et al. 2013) reveal the start of occupation during the Early Bronze Age I, 3408–3026 cal. BCE (3182–3035 cal. BCE at 68%; median 3121 cal. BCE) and ending 3258–2684 cal. BCE (3071–2926 cal. BCE at 68%; median 3002 cal. BCE). Therefore, the site occupation begins during the Proto-Elamite period and after a short hiatus, was again re-occupied ca. 2700 BC. **(**Table 2) The main categories of Proto-Elamite ceramics consists of Beveled Rim Bowls, Buff Pottery, Four Lugged Jars, Uruk Trays, Mono- and Polychrome Ware (typical Proto-Elamite Ware), Burnished Dark Gray Ware and Simple Grey Ware (wheel made and ça. 30% of the whole ceramics assemblage) and Brown Ware (50%). The Painted and Plain Buff Wares demonstrate the connections between Qoli Darvish and southwestern Iran and Mesopotamia, while the grey wares suggest connections with northeastern Iran. Alizadeh assumed that some of this pottery had local characteristics which is not a Proto-Elamite ceramic type (Alizadeh et al. 2013: 157). The Proto-Elamite/Early Bronze Age ceramics of Qoli Darvish were produced by both cottage industries and specialized craft industry, indicating the complexity of the organization of production (ibid. 161).

The administrative technology of the site during the Early Bronze Age consisted of clay balls, along with simple clay tokens, numerical tablet fragments, one numero-ideographic tablet fragment, and door-, bale-, basket- and box-sealings. Other craft activities are attested at Qoli Darvish by metallurgical finds such as clay crucibles, copper ingots, the remains of a metallurgical furnace and copper pins, all of which support specialization and task management during the Early Bronze Age. After the collapse of the "Proto-Elamite" phenomenon and the subsequent ca. 300-year gap in occupation, inhabitation of Qoli Darvish resumed during period IIIA, from ca. 2700-2500 BCE. Along with Yousef Khan Khaveh, it is thus the oldest Early Bronze Age II site in the center of Central Plateau of Iran. According to Sarlak (2020) the ceramics of this period consist of two types. These are a local Godin IV variant and an assemblage of wares most similar to Transcaucasian phase II, which indicates the mixture of these two cultures in this region during the second quarter of the third millennium BCE. Black burnished grey wares comprise 70% of the Qoli Darvish IIIA ceramic assemblage, burnished brown 25%, and plain buff ware 5%. The black-grey wares were burnished on both the exterior and interior surfaces of the vessels, which typically exhibit a sufficiently fired core and are handmade with inorganic temper. The brown wares can be categorized into two groups, handmade and wheel made, in which both surfaces were burnished. Some of this pottery type includes light brown, dark brown and brown to reddish color and three rows of engraved lines on the surface under the burnished slip. This type of engraving continued throughout the whole sequence of the Bronze Age at Tepe Qoli Darvish from period II, IIIA, III-1-3, IV, V and VI. Most of the vessel forms of the Grey and Brown Wares consist of open bowls with simple rim and flat bases. In some cases, there are two

bores beneath the edges of the rim with a triangular shape below the rim probably used as small decorative handle. Some groups of ceramics include open bowls that are not exactly similar with the Transcaucasian types, but seemingly imitate them. Some vessels have a convex body with relatively long cylindrical necks and everted rims without any handle, decorated with wavy geometric incised patterns located under the rim or else carved on the surface. Jars with vertical handles and cylindrical beakers are another widespread ceramic category related to the Early Bronze Age II of sites such as Tepe Yousef Khan Khaveh and Qoli Darvish. These two sites do not have the incised and excised decorations filled with white paste such as those recorded in phase IIA at Yanik Tepe, however; such decorated ceramics appeared only in northwestern Iran from the very beginning of the third millennium BCE and disappeared around ca. 2750 BC (Palumbi 2019). In any event, the Transcaucasian ware, or at least Transcaucasian imitation ware, developed in the Qom plain after 2700 BCE, but local ceramic types numerically dominated the Early Bronze Age II assemblages in the Qom plain (Fig 9). The Qom plain becomes very important during the Middle Bronze Age, ca. 2300-1900 BCE, witnessing an increase in site numbers and overall population (Sarlak 2020; Sarlak and Hessari 2018). The ceramic traditions of the previous period continue with the production of Grey Ware (40%), Buff Ware (40%) and burnished Brown Ware (20%). Toward the end of this period, one subgroup of the Grey Ware pottery spectrum is wheel made, and features burnished interior and exterior surfaces, alternating between black-grey and light grey. At the end of period III_{3-1}, plain Grey Ware began to be decorated with three parallel grooves on the surface. The most common forms of grey pottery are bowls with open mouths and flat bases and large cylindrical storage jars with flat bases. In fact, during this period we face the change of handmade to wheel made wares more generally and the variation of color is much more visible during the period III_{3-1}. Some other common vessel forms consist of flared rim bowls with convex bodies, sometimes with carination, and flat bases. The decoration of burnished brown ware with three horizontal grooves is one of the new innovations of this period (Fig 10).

According to Sarlak (2020), the late Bronze Age of Qoli Darvish (period IV_{6-1}) begins around ca. 1900 BCE and ends ca. 1600 BCE and is characterized by inter-regional communications with the northwestern and central Zagros as well as northeastern Iran. Settlement patterns reveal a further increase in population and the flourishing of sites in the Qom plain. During this phase, site sizes vary from eight hectares (such as the site of Shalamout B, 8.5 hectares) to less than one hectare (Sarlak and Hessari 2018; Sarlak 2020). It is also important to mention that Qoli Darvish played an important role as the main Bronze Age center of the region. According to Sarlak and Hessari (2018) the Late Bronze Age ceramics of Qoli Darvish can be categorized into the following types: Burnished Grey Ware, Painted Buff Ware, Polychrome (Bichrome) Ware, Brown Ware and Red Ware. A few examples are combinations of Grey and Brown Ware. According to Sarlak (2002) during Qoli Darvish IV_{6-1} the ceramic assemblage is approximately 50% brownish/Plum Ware, 40% Buff Ware (whether plain and painted), and 10% Grey Ware, with variation from light grey plain burnished to burnished pattern grey ware with geometric designs. The percentages of the above groups continued throughout the IV_{6-1} period with only some variation and no sharp modifications. The variation found within the Grey Ware category is interesting, with some subdivisions observed between Burnished Light Grey Ware which features geometric designs and Plain Burnished Grey Ware where the entire surface is covered in burnishing without any design. Buff Wares are wheel made and their motifs, which reminds those of Bronze Age samples form Qoli Darvish, are painted in black and include: parallel oblique and vertical hatches, wavy horizontal parallel lines and bands, and oblique intersecting lines which resemble V-shaped designs, all enclosed in horizontal frames. The use of the engraved groove design under the slip includes three horizontal rows below the rim and on the neck and continues to appear on Brown Ware through the end of the IV period. In the middle of period IV, Painted Brown Ware was seen with black painted designs including geometric and, infrequently, animal designs. At the end of this period, appliqued snake motifs appear on the surface of some vessels. One of the most prevalent vessel forms found across all ware types (grey, brown, buff ware) is a body form with the carination and everted plain rims. Among the pinkish Brown Wares of period IV, the characteristic

vessel forms include open forms like basins and bowls, deep plates (with simple rims and ring bases), carinated forms with open everted rim and triangular profiles, wares with short beak-spouts just above the body carination. The forms of the Painted Buff Wares of Period IV include beakers with handles close to the rim and an open mouth and narrow base, as well as bowls and cups with body carination and everted rims (Fig 11). Later in Period IV, for the first time, excised button-shaped decorations were applied on the external surface of vessels. This decoration is often accompanied by the decoration of geometric carvings, engraved patterns (in the form of stripes) and burnished geometric designs used especially for wheel made Grey Wares. Their forms consist of mostly open bowls and rarely closed bowls with flat bases, bell shaped tripods and bowls with basket handles, all of which become more common during the periods V and VI. One of the subgroups of Period IV Buff Wares is monochrome and polychrome ware which is painted with geometric style using brownish red and black paint. This group consist of 1 to 2 percent of the whole ceramic assemblage which continues during the beginning of period VI. Red ceramics are painted with geometric designs and a few animal designs. One of the most distinctive forms which begins during Period IV and continues into Period VI is cone-shaped clay lids with feature a wide triangular handle and are buff to brownish in color. All the surfaces of these lids are decorated with the roll of a densely grooved bands in the form of regular parallel lines enclosed in intersecting stripe frames. Techno-cultural similarities with Estark-Joshqan ceramics include the introduction of “steppe coarse ware” (Hoseinzadeh et al. 2019; Sarlak 2020). This light reddish pottery is handmade with punch or comb designs which are similar to Central Asian Andronovo ceramics (Luneau 2017; Hoseinzadeh et al. 2019, Fazeli and Nokandeh 2019). However, this type of ceramic is not known to appear in the intermediate regions. This evidence does not support the inference of any population movement, but does show that the people of the Central Plateau of Iran were familiar with this technique. In the final stages of Period IV, a new type of decoration became common on the polished grey and plain black-grey pottery, which is important in terms of decorative technique. In this technique, a white paste, usually gypsum-based, is inserted into the geometric engraved designs.

Sarlak categorizes the ceramic forms and decoration of the last two centuries of occupation at Qoli Darvish into two periods: V_{3-1} (1600-1500 BCE) and VI_{4-3} (1500-1400 BCE). He also categorized period V_{3-1} as a transitional period from the Late Bronze Age to the Iron Age. During the period V_{3-1} Grey Ware comprised 60% of the assemblage, Buff Ware (painted with geometric designs and simple) approximately 30% and Brown Ware 10%. The subgroups of Burnished Grey Ware include light Burnished Grey Ware with geometric decorations, Black Burnished Grey Ware with polished geometric designs, excised band decorations, geometric incised and button-like applique decorations, as well as Plain Polished Grey Ware (Fig 12). Vessel forms which continue during Period IV and V include vessels with body carination in combination with simple rims and flat bases as well as carinated bowls, whether open or closed. Small relatively vertical spouts are observed across all pottery groups. During early Period V, a distinctive and unique form of medium to large-sized earthenware vessels with flat bases becomes common. On the shoulders of this type of jars, on the opposite side of excised spool shapes, there is applied an animal's head, either a ram or a horned goat. Other common forms of Period V which continued from Period IV include tripod containers, bell-shaped containers, cups with vertical handles, beakers with relatively cylindrical bodies, button-based cups and bowls, as well as large- to medium-sized food storage spouted jars. The ceramic tradition of Period $VI_{4-3}$was categorized by Sarlak (2020) as the beginning of the Iron Age (1600-1400 BCE). Grey Wares increase from 70% of the assemblage to 80% by the end of the period, Painted and Plain Buff Wares comprise 25% and Brown Ware 5%. In early Period VI, medium-to-large, shouldered jars with flat restricted bases and decorated on both sides on the shoulder with appliqued animal heads (horned goats or rams) and spool-shapes continue from period V. One of the distinctive forms of Period VI is the cone-shaped clay lids with a wide handle and engraved zigzag designs which first appeared in Period IV. New forms appeared for the first-time during Period VI, including containers with horizontal handles, open-mouth beakers with narrow waists and flat bases and vertical handles with applique decorations on the handle, and long-spouted teapots in

which animal figurines were added to the spout. Grooved (or fluted) decoration on fine wheel made Burnished Black Ware appeared for the first-time during period VI. Another new form of this period, characteristic of the Plain and Burnished Grey Wares, is the cylindrical tulip cup with an open mouth and long neck and round base. These vessels have two vertical handles attached under the rim with cross-cut and incised decoration. A new innovation late in Period VI in the grey pottery group is a type of bowl with a convex body and a relatively narrow flat base, an open or slightly closed mouth with a relatively thick and slightly everted rim. Generally, the potters of this period used incised decoration in cut, intaglio, and excised bands, as well as excised buttons under the rim, and incised grooves of horizontal zigzags enclosed within a frame of horizontally arranged triangles. Vessels such as cups and beakers with button bases and small triangular handles or horizontal handles are one of the most common forms observed during Period VI. These vessels are decorated with three zigzag carved decorations and excised buttons. Tripod vessels in the shape of an animal's abstract body, pedestals in shape of an animal's foot, containers with the addition of an animal's body on the rim or body, and spouted containers are other common forms of Period VI (Fig 13). Another new form of Grey Ware is spouted bowls.

Discussion of Qoli Darvish chronological sequence

Period II (3300-2900 BCE):

Period II_{5-1} was recorded in the trenches of AP.33, AO.33 and AN.33-34 of Qoli Darvish with 3555 ceramic items consisting of Proto-Elamite tablets, seal impressions, Burnished Grey Ware of the Hissar II style, a local Painted Buff Ware, and the continuation of Sialk III_7, alongside a number of Proto-Elamite ware types including Beveled Rim Bowls, Uruk trays, four-lugged jars and painted Jemdet Nasr ware. According to Sarlak the local ceramics, especially small-spouted jars, most resemble the Late Chalcolithic ceramic traditions of the northern Central Plateau. The Grey Wares of this period, insofar as they are closely related to those of northeastern Iran and the Gorgan plain, support the inference of a meeting ground of the three cultures: north central Iranian Late Chalcolithic, Proto-Elamite and Uruk-style from the west, and Hissar and the Gorgan plain from the east.

Period IIIA (2700-2500 BCE):

Based on the relative and absolute chronology, the Proto-Elamite phase of Qoli Darvish ends around 2900 BCE. After two or three hundred years of a hiatus in occupation, during the period IIIA stratum of Trench AS.35 (90cm thick), Transcaucasian ceramics appeared. As discussed above, however, during the IIIA period a variety of ceramic types attest to a strong local component in the overall assemblage, i.e., from 2700-2500 BCE. Despite the presence of Kura-Araxes style wares, the evidence as a whole suggests few other contacts with northwestern Iran during this interval. According to Palumbi (2019), phase IIB Yanik Tepe is characterized by plain non-decorated ceramics and starts after 2750 BC. The Transcaucasian ceramics mentioned by Sarlak do not have the incised and excised decorations filled with white paste such as those recorded in phase IIA at Yanik Tepe. This suggests that sites such as Qoli Darvish were a purely local development from 2700 BC onward, with the Kura-Araxes-like wares actually representing just an imitation of Transcaucasian ceramic traditions. In the horizontal excavations of Trench AO.33-35 and AN.33-34 (5x10m, 45cm deep) and vertical excavation of Trench AS.35 (90cm deep) only pottery, ash, bones, and stone mortar was recorded, with neither trench producing any architectural evidence.

Period III_{3-1} (2300-1900 BCE)

Between the cultural contexts of periods IIIA and period III_{3-1} there is 60cm of accumulated culturally sterile natural sediment, indicating a cultural gap in the sequence at Qoli Darvish. Within the Trench AO.34, in an excavated area of 5 square meters, evidence of Period III_{3-1} was found with three architectural phases and one subphase. The radiocarbon date for the earliest of the phase's ranges from 2137-1977 BCE (Phase III_3), Phase III_2 dates to 2011-2000 and Phase III_1 2118-1973 BCE (Sarlak 2020). Rounded structures and storage facilities are the dominant architectural features of this period. As mentioned above, the ceramics of Period III_{3-1} represent a continuation from Period IIIA, despite the gap in the settlement history between the two periods. The ceramics of this

period are predominantly Grey Ware, Buff Ware (Painted and Plain), and a variety of Red-Brown Wares.

Period IV-VI (1900-1400 BCE)

From this period, we have clear evidence of religious activity at the site of Qoli Darvish from the architectural feature called the "Shrine of Qoli Darvish," which dates to the first half of the second millennium BCE. The architectural features of Qoli Darvish from Period IV to VI consist of religious spaces, residential areas, food storage zones, administrative loci and craft quarters (Sarlak 2020). The so-called "shrine with several platforms," which was revealed to have a number of stairs and to have been restored multiple times, seems to have been long in use for ritual activities at Qoli Darvish. According to Sarlak, the platform was carefully filed with adobe bricks during an abandonment episode and then later a new platform was built atop the previous construction without any disturbance. An interesting point is that prior to the in-filling of the main spaces of shrine, first they embedded specific types of ceramics and bronze objects, both in niches and spread among the large volume of mudbricks. This indicates a kind of religious tradition, in which certain vessels types and objects were offered as dedication when the spaces of a shrine were to be filled. One example of such vessels with this specific function that can be cited is the use of polychrome beakers, in which the base of the vessel has a kill-hole. Other examples include Grey Ware tripods with attached animal figures and small beakers with small handles attached to the rim. A number of bronze objects that look like bird beaks or awls were also placed as votive offerings among the filled bricks of the place of worship. The central pit in the middle of the shrine, presumably a hearth, was filled in with gypsum mortar when the building was abandoned and filled. Another interesting find in the shrine context was a large volume of accumulated animal bones, presumably for sacrifice and dedication to the shrine before the infilling the space, on one of the floor layers and in a fireplace associated with one of the main spaces of the shrine. Based on the shape of the central fire pit, at least two types of fireplaces were identified at the shrine of Qoli Darvish. There are two hypotheses related to such fireplaces based on their location and structure. The first type of fire pit has a central cavity which is cylindrical in shape (Period IV) and has a kind of fire-escape which seems to have been used for igniting the fires. The second group of fireplaces lacks this auxiliary feature, and their central cavity is bowl-shaped. These features were found in the central space of the shrine and it appears that fires were transferred here from hearths of the first type located in adjoining rooms. One anomalous hearth feature had a central cavity that was divided into four quarters. Interestingly, the shrine may have been a multipurpose space. A large storage jar was found on the platform to one side of the shrine (5x5m in size), which was probably related to the ritual activities that took place in the space. Several such storage jars were found in the storage rooms that frequently appeared at Qoli Darvish during this time. From within the main spaces and architectural features related to the complex of the Qoli Darvish shrine, additional data supporting the specific function of the site include human figurines, small animal figurines, cylindrical seals, pottery lids, which were decorated with images of gods and goddesses in narrative scenes, a large number of pieces of gypsum inside the jars, different types of tokens made from gypsum, ceramics, clay and stone all support the rituality of the site. Another indicator of administrative activities is that inside one of the rooms of the complex, 50 gypsum tokens, 30 pottery tokens, 20 seal impression, and two-cylinder seals was found. Another attestation related to such activities consists of the pieces of lids bearing seal impressions.

With respect to cultural interactions evident at Qoli Darvish during this time, our data reveals a close connection to Hissar IIIB-IIIC and Shah Tepe IIa assemblages through certain motifs and vessel forms. In particular, excised geometric and animal designs (mostly snakes), embossed geometric motifs, geometric carvings, carinated vessels with small spouts, cylindrical vessels with a flat base and tall neck, and bottle-shaped vessels. Hissar IIIC-style small miniature stone columns were also found at Qoli Darvish during Period IV, decorated with engraved geometric designs. Such stone objects have also been recorded at Tureng Tepe (Bessenay-Prolonge and Vallet 2020), Shahdad, Khinaman, and other sites in SE Iran as well as at Gonur Depe (Sarianidi 2006).

The Kashan region

The work of Roman Ghirshman and Sadegh Malek Shahmirzadi argued that after the collapse of the urban societies of the Sialk IV period during the early third millennium BCE (Fazeli and Nokandeh 2019), the Kashan plain remained unoccupied until the middle of the second millennium. Tepe Sialk chronology was updated recently bith by Sadegh Malek Shahmirzadi and Nokandeh and also by one of the authors (HFN). In the depth of the leading trench of Grishman which marks the beginning of the establishment of southern Silk, a sample was selected by Hassan Fazeli Nashli. This sample was taken from the northernmost point of the eastern wall of the trench, close to the floor (considering the sediments formed during these years, the lowest point was selected) and recorded with the code SKS-OSL6-2018. As a result of the analysis, the date of this sample was estimated to be around 4080 +-700 BC. According to the studies of Hassan Fazeli Nashli with the help of Sialk ziggurat, which was previously thought to belong to the third millennium BCE, dates back to the first millennium BCE. Two examples of absolute dating and a sample taken from the southern platform show that this area has a date between 884 and 766 BCE (Fig 14). It is possible that according to the scattered surface evidence, this area was occupied during the Achaemenid period. Recent research by the Department of Archaeology of Kashan University led by Javad Hoseinzadeh and Mohsen Javari in the hilly flanks of the Kargas Mountains in eastern Kashan, however, has produced new evidence on this crucial period. Their survey has revealed numerous cemeteries dating to the Bronze and Iron Ages in the “highlands” of Kashan. These cemeteries include three heavily looted sites in the Rahaq valley, between the villages of Estark and Joshaqan, one in Sok-e Cham near Gholam Tepe, a well-known settlement dating from the late second to early first millennium BCE and finally, a cemetery located in the village of Maraq in the heart of the Kargas Mountains. From 2016-2019, a team from the Department of Archaeology of the University of Kashan, in collaboration with Archaeology Institute of the University of Warsaw conducted four seasons of excavations at the site of Estark-Joshaqan. These excavations brought a wealth of new information to light about the burial customs of the Central Plateau of Iran over the course of the entire second millennium BCE (Hoseinzadeh et al. 2017). Features that recall the Middle-to-Late Bronze Age burial traditions of northeastern Iran include cremations, shaft graves, and the interment of animal parts (hands, legs, and jaws) as grave goods. The five ^{14}C dates from the site have helped us to gain greater insight into the previously ambiguous chronology of the Central Plateau during the second millennium which was rooted in two factors: the existing chronology is out of date and lacks any stratigraphic anchor in a well-excavated site (Hoseinzadeh et al. 2019).

As is well-known, the basis for the chronology of material culture dating to the second millennium BCE on the Central Plateau is based on the early excavations of Roman Ghirshman at Sialk, particularly those of Cemeteries A and B, as well as on comparisons to material from the uncontrolled stratigraphic excavations of Tepe Giyan (Contenau and Ghirshman 1939). With regard to the dynamic nature of the horizontal stratigraphy and lack of absolute dates at these cemeteries, one can easily imagine how difficult it is to establish a reliable chronology. But fortunately, the excavation of the Estark-Joshaqan, located less than 15 km west of Sialk and sharing most of its cultural material with Sialk Cemeteries A and B, has allowed more reliable data about chronology of this period to be obtained. The cemetery of Estark-Joshaqan is composed of two hills (eastern and western), located on the southern terrace of a dry river channel, named Rood Geleh, that runs from west to east through the whole Rahaq valley. Like many other sites in Iran, both of these hills have been heavily looted in the past two decades and the four seasons of excavation at the site have been performed on the areas of the site that were less disturbed. These excavations unfortunately showed that the western mound has been comprehensively looted, but the eastern mound had enough cultural strata still intact to reveal new information both on the chronology and cultural traditions of the second millennium BCE. After four seasons of excavation across four trenches in quadrant E-J 1 (Trenches A, B and D along the western edge and Trench C along the eastern edge) it has been made clear—based on radiocarbon dating and stylistic analysis of pottery forms and decorations—that there is a chronological difference between the eastern and western parts of the E-J 1 cemetery. According to two calibrated radiocarbon dates obtained from

charcoal recovered from a stone-walled grave with cremated human remains from Trench A (discussed below), the dates of the grave range between 2146-1960 BCE. Two more radiocarbon dates from Trench C returned a date range of 1189-936 BCE. Stylistic analysis of the pottery assemblages from these contexts also demonstrates this chronological differentiation.

From the Trenches A, B, and D (at the western edge of E-J 1) the most prevalent vessel forms are large, spherical, open-mouthed jars, medium-sized open-mouthed bowls, small bowls with ring-bases and straight or inward-oriented rims, a small number of tripod bowls, small-to-medium sized ring-base bowls with restricted mouths and single handles. Rare forms include two-handled jugs. One very important category of ceramics is incised conical handmade lids with geometric patterns. These incised conical lids bear an important implication: while they do not have any precedents in the entirety of the prehistory of the Central Plateau, they appear suddenly at some settlements (e.g., Qoli Darvish, Sialk and Ozbaki) and cemeteries (e.g., Sarm, Sialk, Estark-Joshaqan) during the first half of the second millennium BCE. Although there is no consensus about the function of these lids (Sarlak 2020), their incised geometric patterns are undeniably similar to Late Bronze Age Andronovo-associated traditions of vessel decoration (Luneau 2017). If this resemblance is not just a coincidence and they in fact represent actual cultural contacts between these neighboring cultural zones, then the nature of these contacts is an important subject to be further addressed. Trench C (on the eastern edge of E-J 1) was radiocarbon dated to ca. 1200-900 BCE. Here, we are faced with an entirely different ceramic assemblage in terms of form and decoration. Here, in addition to large jars, ring-base bowls and cups, we encounter large flat plates with one or two horizontal handles, pitchers with narrow necks and everted rims and one or two vertical handles, medium-sized hemispherical cups with a single handle and simple base, crocks of different sizes with flat lids and kohl containers with simple or zoomorphic handles. One of the most characteristic features of the Trench C pottery assemblage is the decoration of some vessels. In particular, the kohl containers and middle size bowls exhibit special representations of snakes as handles, which are totally absent in Trenches A, B and D. Another characteristic of Trench C vessels is painted decoration on some pottery types such as cups and plates, which is missing from the western trenches of the site. Here some geometric motifs in plum colors are executed on light gray or buff grounds, or in other cases, the whole vessel is covered by a plum color slip and then decorated with simple burnished parallel lines. Some of these vessels appear to represent the beginning of Sialk VI decorative traditions (Cemetery B) **(Fig 15)**.

As it is clear, radiocarbon dating in combination with stylistic analysis at the recently excavated sites of Estark-Joshaqan have led us to a better understanding of the typo-chronological situation of the Central Plateau of Iran during the second millennium BCE. These data are significant because they are useful in estimating the chronology of old excavated cemeteries like Sialk A and B, Khorvin, Qeytariyeh, Chandar and Sarm which had previously lacked a strong stratigraphic anchor for their absolute chronology.Another astonishing find from the Estark-Joshaqan cemetery is its ritual practices. During the first season of excavation at Trench A, an oval stone grave was found, ca. 3.5x2.5m with the longer axis oriented southeast-to-northwest (Fig 16). In the middle and along the northern side of this structure, which had been filled with medium-to-large pebbles, were two conical pits. These pits measured approximately 110cm in diameter at the top and 30cm in diameter at a depth of 1m. They were filled with potsherds, ashes, and the cremated bones of humans and animals. After examining the fill of these pits, it was determined that they contained the remains of at least 13 individuals of varying sex and age at death (Sołtysiak et al. 2016). While the excavation team screened the entirety of the fill of more than 50 looted pits at or near the site, not even one additional piece of cremated remains was found in the whole cemetery. This evidence suggests that these remains were cremated elsewhere and subsequently transported to this grave (ibid). Hence, the team concluded that cremation was not a dominant burial custom at the cemetery. Instead, it appears to have been a singular phenomenon whose origins and existence in this cemetery should be further investigated.

Like the more exceptional example mentioned above, the majority of oval graves at the site were built using stone slabs that appear to have been obtained locally. The overall structure of the other graves differs from the cremation burial, however. Indeed, the majority of burials are shaft graves, with a single rectangular shaft (averaging 180×80×80cm) and a chamber cut either to the north or south side of the shaft, of approximately similar dimensions. While this type of grave has been identified at Shahr-e Soukhteh and at Shahdad in southeastern Iran during the Middle-to-Late Bronze Age, the most comparable examples appear to be the contemporaneous graves from Tepe Hissar (Dyson 1989). Our inspections of the published record show at least a few such burials at cemeteries such as Sarm as well, but they due to poor excavation techniques, the complexity of burial structures as well as taphonomy processes, the excavators unable to identify their original morphology, thus hindering the discernment of these examples as proper comparanda. If we take all these attractive and puzzling data from Estark-Joshaqan 1 & 2 into account, it persuades us that a deep reconsideration of the entire literature concerning the chronology and culture history of the second millennium BCE of the Central Plateau of Iran is required.

Conclusion

As we mentioned in the beginning of this paper, archaeological research conducted in both the northern and southern zones of the Central Plateau permits us to revise our earlier conclusions about the nature of socio-political changes in the Central Plateau of Iran during the third and second millennium BC. Future research will seek to understand how environmental changes impacted local societal transformation in this region; more specifically, how did changing climate patterns affect the settlement shift and subsistence system of the Iranian Central Plateau between the late fourth and middle of the second millennium BCE (Schmidt et al. 2011; Leroy et al. 2013; Carolin et al. 2019; Palmisano et al. 2021). A full Holocene paleoclimate record produced from a stalagmite collected from Katalekhor cave (1719 masl) in the Zanjan Province (35.84°N, 48.16°E; Fig. 1) shows a reduction in local rainfall/soil moisture between 5.4 and 4.5 ka BP, and a broad decrease in rainfall amount beginning around 4.3 ka BP and ending around 2.0 ka BP (Andrews et al., 2020). Additionally, a shorter third millennium BCE record of abrupt regional dustiness and regional rainfall amount, produced using a stalagmite collected from Gol-e Zard cave on the southern slopes of the Alborz mountains (35.84°N, 52.00°E, 2535 masl; Fig. 1), indicates two abrupt centennial-length periods of enhanced summer dust events: 4.51-4.40 ka and 4.26-3.97 ka BP (Carolin et al., 2019). The dust is suggested to be sourced from the Tigris and Euphrates river valley region, due to either enhanced aridity, stronger winds, and/or change in soil properties or vegetation cover. Several factors suggest a drier regional climate coincident with these two century-scale dusty periods (Carolin et al., 2019). Our preliminary hypothesis is that the 4.51-4.40 ka and 4.26-3.97 ka BP events, characterized by expanding aridity and widespread aeolian dust deposition, negatively impacted agricultural production on the Iranian Central Plateau, causing the previously settled populations to scatter at various points during the Bronze Age.

Archaeologically, cemetery sites such as Yousef Khan Khaveh or Estark-Joshqan evidence a population with a pastoral economy based on animal husbandry and suggest a different socio-ecological and economic system than that which characterized the previous period (Vidale et al. 2018). Palmisano has postulated that the Bronze Age societies of Iran between 5300 and 4500 calBCE were resilient to climatic variation during the Middle Holocene period and it seems to us this variation should be seen regionally in all over Iran (Palmisano et al. 2021: 21). The results from the Gol-e Zard cave stalagmite record show abrupt shifts to drier climate with larger and/or more frequent dust events from 4.51ka to 4.40ka and from 4.26ka to 3.97ka (Carolin et al. 2019: 4). This interval correlates to a period in which the populations of Qazvin, Qom and the Zayandeh Rud region visibly increased, attesting to this degree of cultural resilience during the second half of third millennium BCE. The aeolian dust, strong winds and aridity of the Central Plateau during the three-hundred-year duration of the 4.2 ka event (ibid: 5) likely continued to affect the vegetation pattern and systematic agricultural practices of the region. It is now clear that there is no evidence of complete settlement collapse in the Central Plateau during later prehistory, especially in comparison with

Mesopotamia and elsewhere in Iran. The Central Plateau of Iran during the sixth, fifth and fourth millennia can be characterized by an extensive agro-pastoral economy. During the third millennium BCE, with its decadal-scale shift into and out of drier and dustier conditions from 4.51ka to 4.40ka and again from 4.26ka to 3.97ka (2560-2450 BCE and 2310-2020 BCE), the adoption of new ways of life did not afford the development of large urban centers. Such urbanization processes would have to wait until irrigated agricultural systems were developed during the second millennium BCE. While the settlement types, agricultural practices, system of writing and administrative system characteristic of the late fourth and early third millennia BCE were abandoned by people of the Iranian Central Plateau people during the socio-ecological shifts of the mid-third millennium BCE, mortuary rituals from the cemetery sites mentioned above show that complex society lived on in this region although the scale of societies were changed in respect of former period.

We hope this new look at the archaeology of the Iranian Central Plateau will encourage further fresh perspectives on this history and stimulate new comprehensive and multidisciplinary research programs in the near future.

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Cultural Period (BCE)		**Sites**
Iron Age 1	1250-1050 BCE	Sialk, Estark, Sagzabad
Bronze Age 3400-1500 BCE	Final Bronze Age 1500-1250 BCE	Sialk, Shizar, Sagzabad, Pardis, Qoli Darvish, Qom plain
	Late Bronze Age 1900-1500 BCE	Estark, Shizar, Sagzabad, Kopandeh, Qoli Darvish- Qom plain
	Middle Bronze Age 2200- 1800 BCE	Shiretal, Kopandeh, Qoli Darvish, Qom plain
	Early Bronze Age II Kura-Araxes 2800 – 2200 BCE	Shizar, Yousef khan khaveh, Qoli Darvish, Varzaneh (051-013), Kopandeh
	Early Bronze Age I Proto-literate 3400 – 2800 BCE	Arisman, Sialk, Sofalin, Qoli Darvish, Qom plain
Note: Sites from the Qom plain are described in Table 2.		

Table 1- Cultural Period of North and south-central plateau of Iran

Chronological table of Qom plain and cultural phases of Qoli Darvish			
Simultaneous Sites in The Qom Plain	**Period**	**Date (BCE)**	**Chronological sequence of The Qoli Darvish**
Teppeh Gerdali, Teppeh Sarm, Shamshirgāh, Shalmout B, Teppeh Zaynab Khathon, Jam-e Lavdar, Teppeh Kaftarkhor, Teppeh Ashtarieh	Beginning of Iron Age	1500-1400	*VI4-3*

Teppeh Gerdali, Teppeh Sarm, Shamshirgāh, Shalmout B, Teppeh Zaynab Khathon, Jam-e Lavdar, Teppeh Kaftarkhor, Teppeh Ashtarieh	Transition to the Iron Age	1600-1500	*V3-1*
Teppeh Gerdali, Teppeh Sarm, Shamshirgāh, Shalmout B, Teppeh Zaynab Khathon, Jam-e Lavdar, Teppeh Kaftarkhor, Teppeh Ashtarieh, Northern Teppeh Khalaj Ābād, Teppeh Chehel Bandegān	Late Bronze Age	1900-1600	*IV6-1*
Teppeh Alborz, Teppeh Giv, Shalmout B, Jam-e Lavdar, Teppeh Kaftarkhor, Northern Teppeh Khalaj Ābād, Shamshirgāh, Teppeh Chehel Bandegān	Middle Bronze Age	2300-1900	*III3-1*
Settlement Gap			
Teppeh Yousef Khan Khaveh	Early Bronze Age, Kura–Araxes	2700-2500	*IIIA*
Cultural Gap			
Teppeh Gerdali, Shalmout B	Proto-Elamite, Early Bronze Age	3300-2900	*II5-1*

Table 2- Chronological table of Qom plain and cultural phases of Qoli Darvish

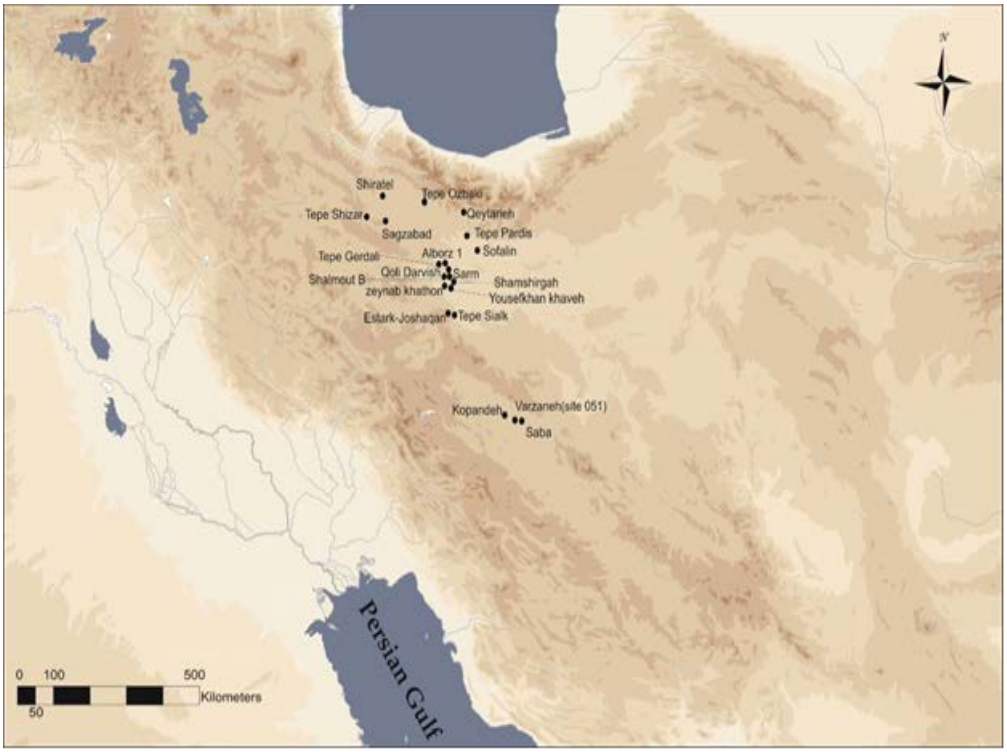

Figure 1- Fig. 1 Bronze age sites (Northern and Southern zones of the Central Plateau of Iran)

Figure 2- Iron objects, Qoli Darvish IV (Sarlak 2020:322)

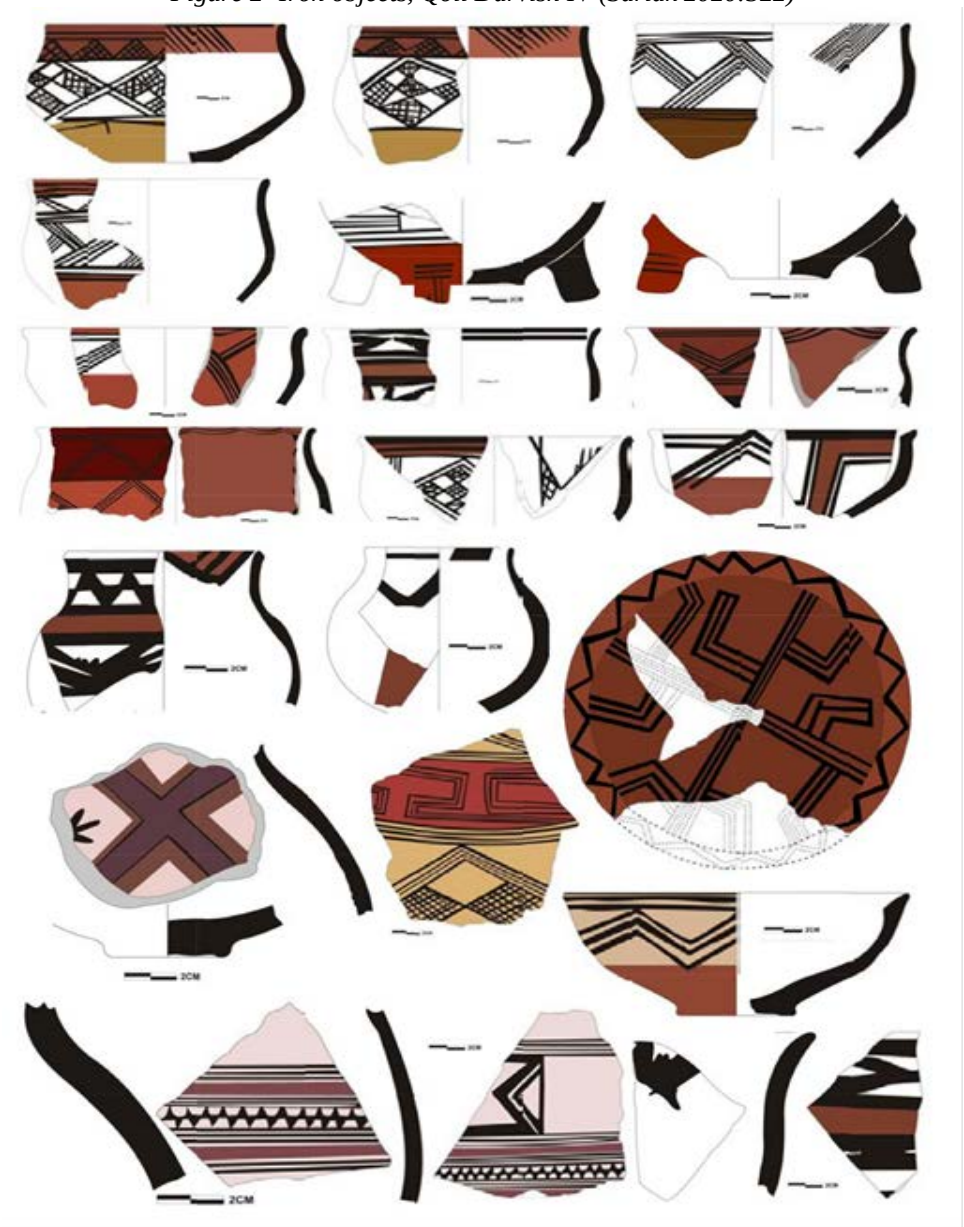

Figure 3- Selection of Sagzabad Polychrome wares (Azizi et al. 2011: fig2)

Figure 4- Pottery of Tepe Pardis: milk-bottle (a); pitchers (b-c); spouted jars (d); conical bowls with flat base (e); handled pitcher with open spout (f); cups (g and k); Rare vessel (h); beaker (i); tripods (j,l,m)

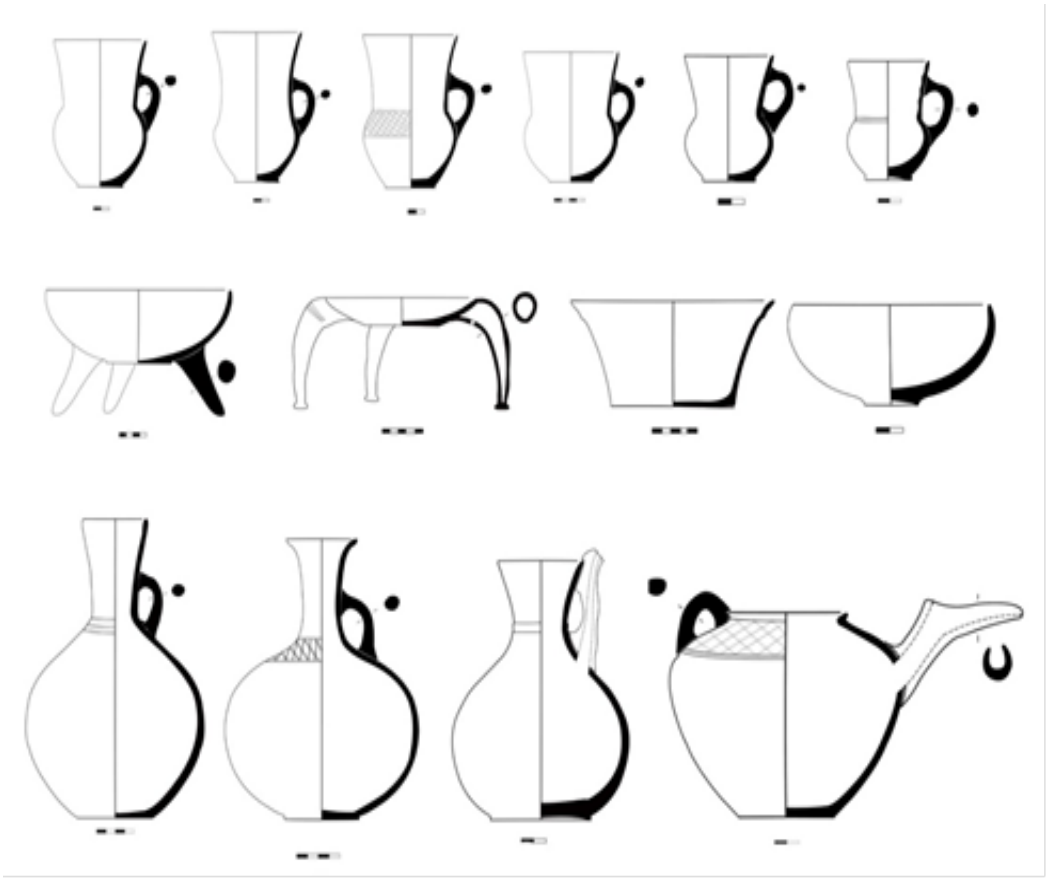

Figure 5- Selection of Tepe Pardis wares

Figure 6- Comparison of Tepe Pardis and Khorvin wares

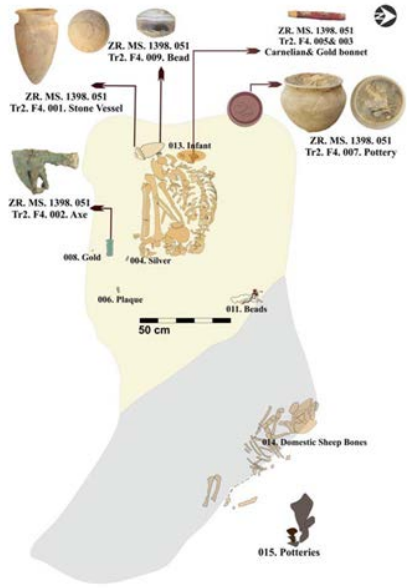

Figure 7- Site 051, trench 2, feature 4: plan of the grave and location of the grave goods (Ilkhan et al, 2019: fig 5)

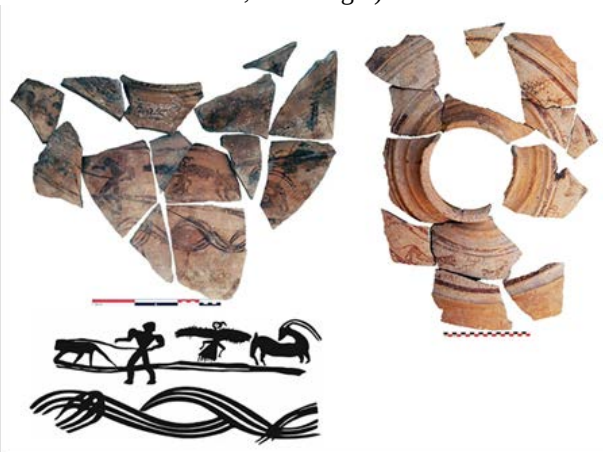

Figure 8- Two Painted Jars Discovered at the Site No. 051 (Rafi´i-Alavi et al. 2021: fig 9)

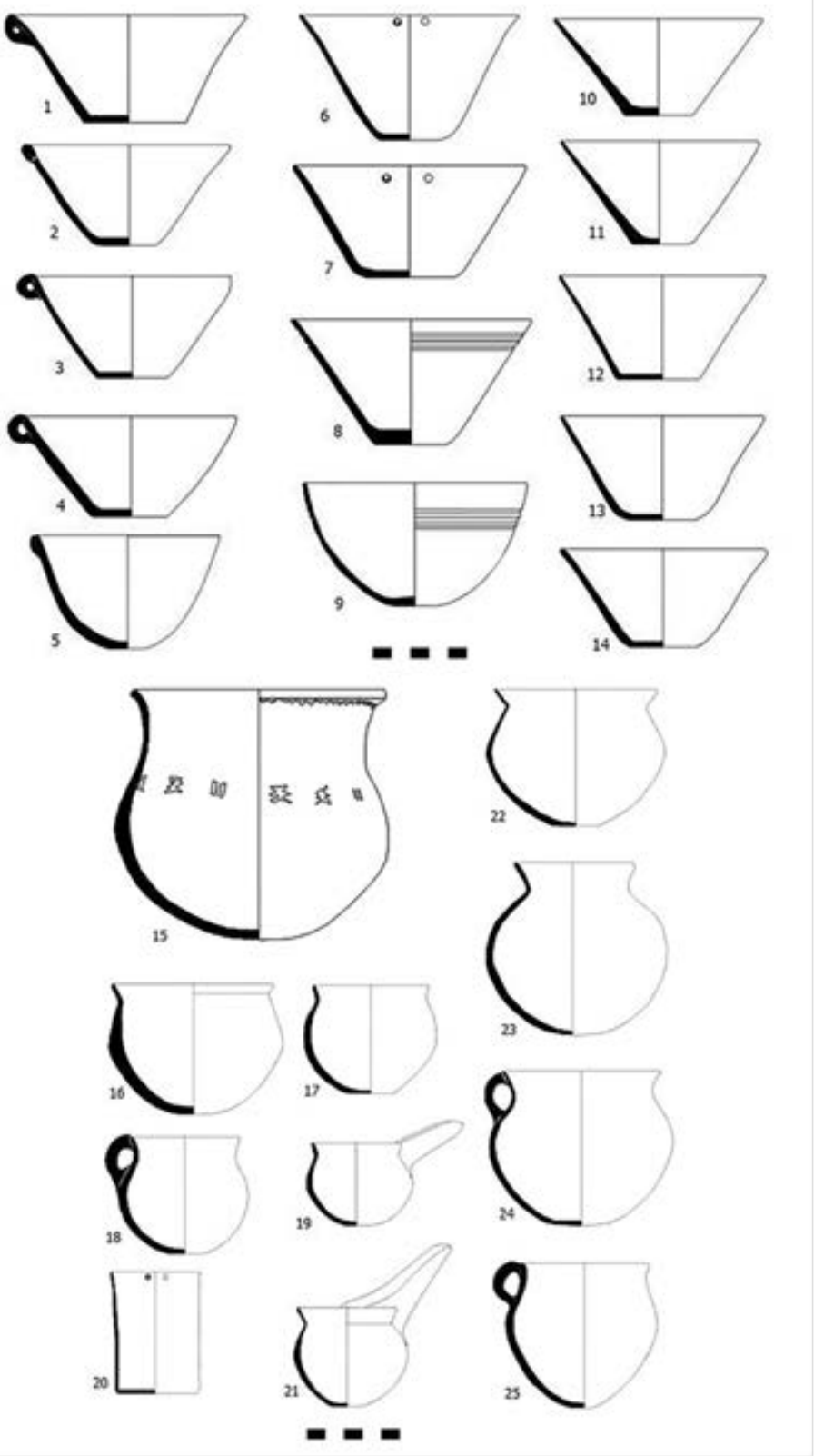

Figure 9- Black burnished grey ware (1-5, 10-18, 22-25); Burnished Brown ware (6-9,20); Buff ware (19,21) from Yousef Khan Khaveh (Qoli Darvish IIIA) (Sarlak 2020)

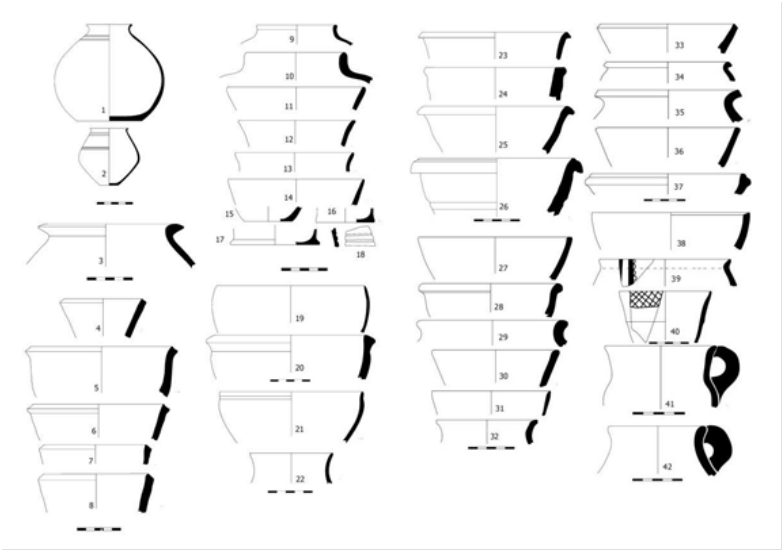

Figure 10- Qoli Darvish III 1-3 (Sarlak 2020)

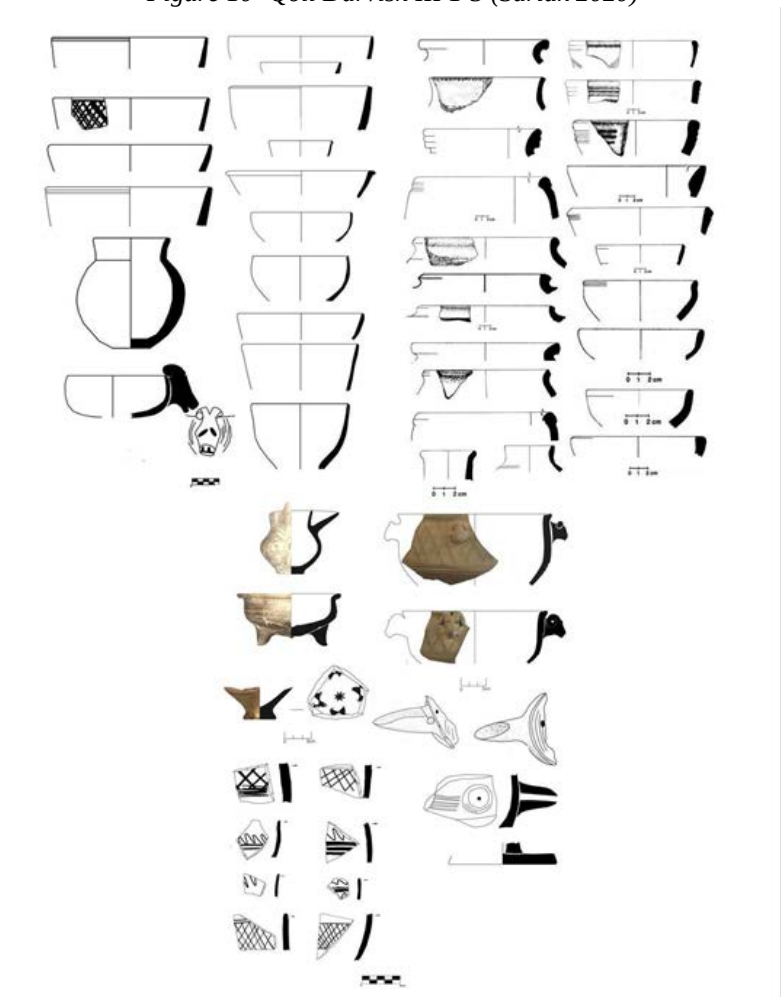

Figure 11-- Black burnished ware, Qoli Darvish IV (Sarlak 2020)

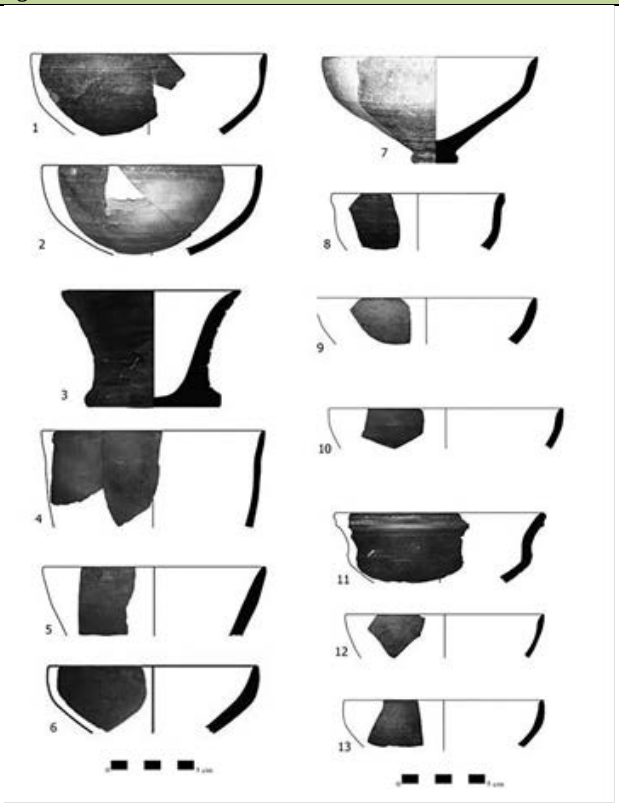

Figure 12- Wheel-made black burnished grey ware (1-13); Qoli Darvish V (Sarlak 2020)

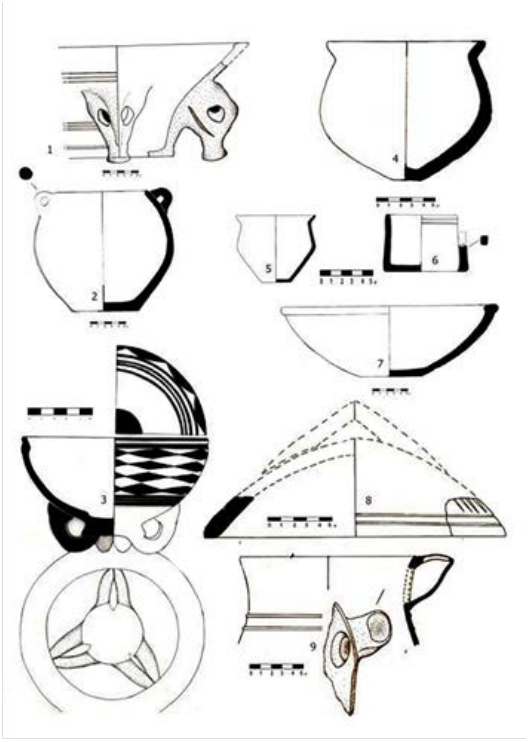

Figure 13- Selected pottery of Qoli Darvish VI (Sarlak 2020)

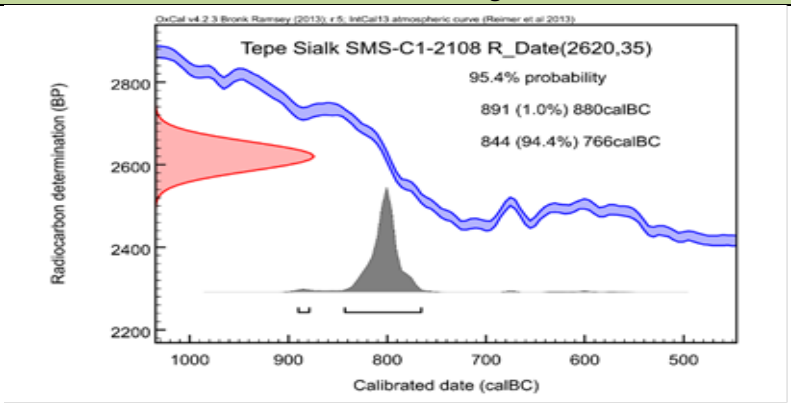

Figure 14- Recent 14C date from Tepe Sialk (South)

Figure 15- Reconstructed pots from the oval grave, Estark (Hoseinzadeh et al. 2017)

Figure 16- Ordinary Burial and Pit A for Cremated Remains in the Oval Stone Structure of Trench A, Estark.

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شمال و جنوب مرکز فلات ایران در هزاره سوم و دوم پیش از میلاد (۳۲۰۰-۱۵۰۰ ق.م)

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چکیده

جوامع نواحی شمال و جنوب «مرکز فلات ایران/فلات مرکزی ایران» در ربع آخر هزاره چهارم پیش از میلاد به نهایت شکوفایی رسیدند. این شکوفایی با ظهور سیستم‌های اجتماعی پیچیده، تجارت با مناطق دور دست و نظام های جدید در مدیریت فعالیت‌های اقتصادی، مانند «سیستم نوشتاری اولیه آغاز عیلامی» مشخص شد. این شواهد این دیدگاه را تأیید می کند که ساکنان فلات ایران در این زمان با یک سیستم نوشتاری نسبتاً یکنواخت و سازمان اقتصادی مشابه به یکدیگر متصل بودند. با این حال، امروزه می دانیم که تشابه «فرهنگ ظروف خاکستری» در محوطه های پروتو-عیلامی شمال فلات مرکزی مانند تپه سفالین، قلی درویش، میمنت آباد و سیلک نیز حاکی از ارتباطات بین منطقه ای، فراتر از دوره «آغاز عیلامی» است. به هرحال به نظر می رسد که این جریان فرهنگی در طی هزاره سوم پیش از میلاد دچار گسست شده و جمعیت ها پراکنده شده و نظم نوینی جوامع انسانی را فراگرفته بود. اطلاعات کنونی نشان می‌دهد که بیشتر سکونت‌گاه‌های مس سنگی در حدود ۳۴۰۰ سال قبل از میلاد به تدریج متروک شدند، به طوری که جوامع انسانی هزاره سوم رویگرد دیگری را برای تطابق با محیط پیرامونی خود تجربه کرده بودند. به نظر می رسد که یک چنین تغییرات اجتماعی ممکن است با رویدادهای اقلیمی در ربع آخر هزاره چهارم قبل از میلاد (5.2ka) مرتبط باشد، که مشخصه آن خشکی و افزایش فعالیت بادی است که سیستم کشاورزی را بی ثبات کرده بود. همان طور که ویداله فرض کرد (Vidale et al 2018) تکامل اجتماعی فلات مرکزی، بر اساس شبکه های غیرمتمرکز در طول دوره مس-سنگی و اندکی پس از ۳۰۰۰ سال قبل از میلاد خاموش شد، اما در مدت کوتاهی دوباره شکل نوینی بخود گرفت که متفاوت از دوره قبلی بوده است. این مقاله با مرور کشفیات اخیری که در شمال فلات مرکزی صورت گرفت سعی نموده است که ضمن ارائه یک گاهنگاری جدید برای منطقه، تحولات فرهنگی آن را نیز با رویکرد دیگری توضیح دهد. در این مقاله، تحولات اجتماعی درون منطقه‌ای و ارتباطات فرهنگ مادی بین منطقه‌ای را براساس داده های جدید شرح داده است.

واژه های کلیدی: شمال فلات مرکزی، عصر مفرغ، قلی درویش، استکرجوشقان، تپه سرم، تپه پردیس، سفال خاکستری، آغاز عیلامی.

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