

Review and Synthesis of the Neolithic Cultural Development in Fars, Southern Iran

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Abstract

After the eve of domestication of some wild species of cereal grains as well as sheep, goat, and pig in the Iranian central Zagros Mountains in the 2nd half of the 8th millennium BC, the process of Neolithization and sedentism began with earnest outside of this core region. This initial Pre-Pottery Neolithic (PPN) phase appeared in Lowland Susiana, in the province of Khuzestan, southwestern Iran, and in highland province of Fars around 7200 BC. While the Pottery Neolithic (PN) phase in Susiana developed into a set of regionally uniform material culture, the contemporary PN landscape in Fars developed into a mosaic of regional cultures with both related and unrelated ceramic tradition. Yet, from the onset of PN, these early communities had inter-regional connection, as the presence of Persian Gulf shells, copper, and obsidian in many of these early settlements indicate. This mosaic of different ceramic traditions eventually developed into two distinct pottery traditions with specific geographic distributions in northern and south-eastern Fars.

Introduction

Archaeological surveys and excavations in the Kur River Basin (KRB) of Fars province during the last two decades have shed much light on the prehistoric cultural development in the region (Fig. 1). The discoveries in the last two decades have considerably improved our understanding of the dynamics of the Neolithic period in Fars and have also made us aware of how much we can still learn through sustained research in the region. The discovery of a new class of pottery at Qasr-e Ahmad in the Firuzabad region, unrelated to the dominant Mushki and Jari ceramics in the KRB and northern Fars, pointed to a different class of Neolithic pottery with specific geographic distribution. Similar ceramics had been already known from the Fasa and Darab regions, but it was not recognized as specific to southeastern Fars. Close parallels to this class of pottery were also found at Tappeh Gav Koshi, extending the sphere of influence/interaction of this early Neolithic culture to the neighboring Kerman region.

This article is an attempt to summarize and synthesize the new and old evidence of Fars Neolithic cultural development. In so doing, the Neolithic period of the region is divided into Aceramic Fars, Formative Fars, Archaic Fars 1, Archaic Fars 1 Transitional, and Archaic Fars 2 (Table 1). Excavations and surveys that are related to periods later than Archaic Fars 2/Jari B are not discussed here.

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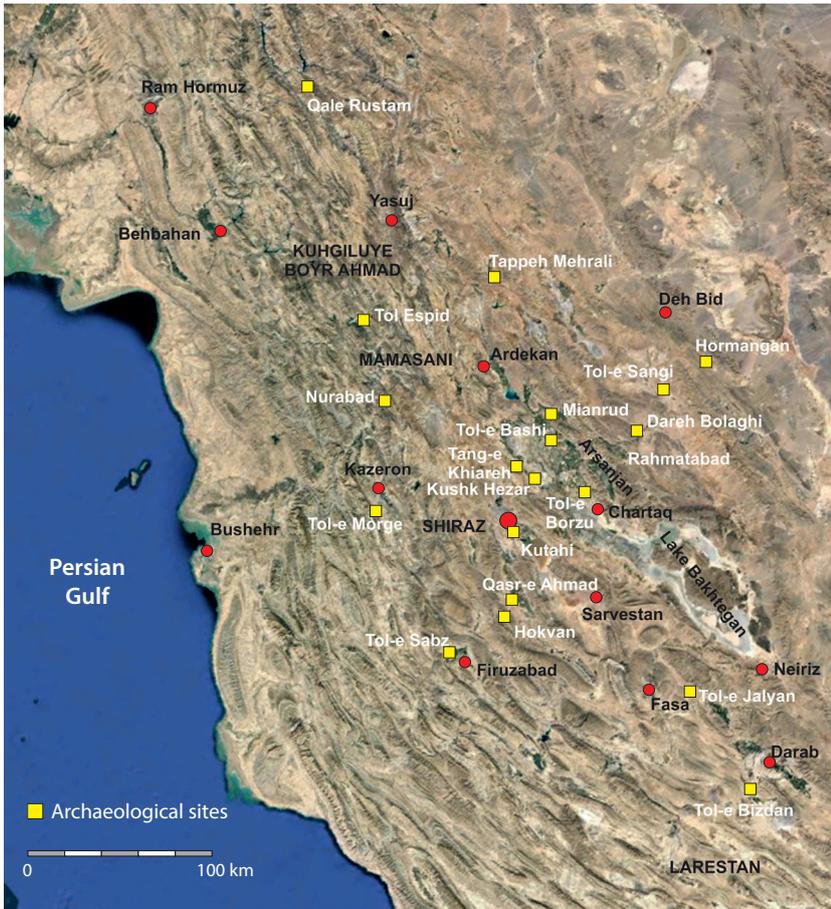


Fig. 1. Fars and the archaeological sites discussed in this paper (graphics: A. Alizadeh).

Table 1. Relative chronology of the Neolithic sites in Fars.

Absolute Date	North and Northwestern Fars									Southeastern Fars			
	Period	Rahmat-abad	Tol-e Sangi	Hormangan	Mushki	Jari A III	Bashi	Nurabad	Jari B	Qasr-e Ahmad	Hokvan	Jalyan	Bizdan
5500	Late Archaic 2												
	Early Archaic 2												
6000	Archaic Transitional												
	Archaic 1			?									
6500	Formative												
7000	Aceramic												
7500													

A. Alizadeh

Aceramic Fars

To this date, evidence of this crucial phase of occupation of the region comes from the basal levels of Tappeh Rahmatabad (Azizi Kharanaghi et al. 2014; Azizi Kharanaghi/Khanipour 2014), Tol-e Sangi (Khanipour 2019; Khanipour et al. 2021, 707), Qasr-e Ahmad (Azizi Kharanaghi et al. n.d.; Kamjan et al. 2018), and possibly from Tol-e Hokvan in the Kavar region of Fars, some 60 km southeast of Shiraz (Bernbeck et al. 2006) (Fig. 1).

Rahmatabad

At an elevation of 1780m a.s.l., the small (0.6 ha) mound of Rahmatabad is located next to the village of Rahmatabad, on the west bank of the Sivand river and some 40 km north of Persepolis in the fertile Kamin plain (Fig. 1). The mound is 8 m deep, 5 m of which is above the plain surface. The entire deposits consist of remains of Achaemenid, 5th millennium Bakun black-on-buff, Mushki transitional, formative and aceramic phases, the latter radiocarbon dated from c. 7450 to 7047 cal BC. Above the remains of the aceramic phase, simple pottery appears. Less than two meters of deposit of ashy and debris layers, with no traces of architecture or built installations, constitute this pottery phase. The lower ceramic level, about one meter, yielded only a coarse plain soft reddish ware, which is designated as “formative Mushki” by the excavator. The decorated and relatively technically and artistically advanced Mushki ceramic, mixed with some early Jari sherds, appears above this early phase of Neolithic pottery, but the coarse plain ware continues (Azizi Kharanaghi et al. 2014, 19 fig. 19,65–73; Azizi Kharanaghi/Khanipour 2014, 86 figs. 10–11).

The aceramic phase at Rahmatabad consists of ephemeral ashy and debris lenses with no solid feature. Objects from these layers consisted of flint and obsidian blades and bladelets, bullet-shaped cores, animal bones and bits of charcoal that were mixed with ashy and burnt layers (Azizi Kharanaghi/Khanipour 2014; Azizi Kharanaghi et al. 2014). The lithic industry has been compared to that of Early M’alfaatian, indicating a shared industry with the northern/western Zagros region (Nishiaki et al. 2013; Azizi Kharanaghi et al. 2014, 25–27).

The paucity of the recovered material does not allow the reconstruction of the fauna and flora that existed and exploited in this crucial phase. Nevertheless, based on the scant remains, domesticated species of glume wheats and barley existed from the beginning of the occupation. Einkorn and emmer wheat constitute the main crop throughout the sequence, with bread wheat appearing in the much later Chalcolithic levels (Tengberg/Azizi Kharanaghi 2016). Analysis of the faunal evidence is not yet completed but based on the available contemporary evidence from Qasr-e Ahmad aceramic phase, domesticated sheep and goat must have existed from the beginning, with hunting as a supplement.

Qasr-e Ahmad

With an area of about 6 ha (Kamjan et al. 2018, 28), Tol-e Qasr-e Ahmad is the largest Neolithic settlement in Fars (Fig. 1). The 5.5 m deep cultural deposits yielded evidence of aceramic, formative and archaic phases in this remarkable mound (see below for the ceramic phases). Based on radiocarbon dating, the aceramic deposit dates to c. 7200–7000 cal BC. Unlike all other aceramic mounds in Fars, here remains of a pisé structure, ca. 2.2 × 1.8 m, whose walls and floor were covered with red paint (ochre?) were discovered¹. The flint industry is similar to that of Rahmatabad and does not change much

¹ In the first report on this site (Bernbeck et al. 2006, 29) the wall painting is taken as an indication of a “hierarchical society”. But almost all Neolithic architecture excavated in Fars yielded walls decorated with red ochre, such as Qasr-e Ahmad, Hormangan, Mushki, and Jari.

throughout the sequence. Large amount of obsidian was also found in this phase. Preliminary analysis shows that both variety of wild and domesticated goat were common at the site (Kamjan et al. 2018, 31 fig.4). As in many early Neolithic sites in Fars, sheep is rare, and cattle is even less common. The subsistence economy was supplemented by hunting of gazelles and boars (Azizi Kharanaghi et al. n.d. and pers. comm.). Remains of freshwater mollusc and Persian Guld *Conus* shells were also found. Wheat and barley were already domesticated, as is the case in all early Neolithic settlements in Fars.

Tol-e Sangi

This is a small (0.5 ha) mound near Pasargadae in the Marghab plain (Fig. 1). It was excavated in 2019 (Khanipour et al. 2021, 15; Khanipour 2019). This early Neolithic site was heavily damaged by the local farmers and a large pond that was excavated in the middle of the site had destroyed 3 m of the upper part of the mound. The site, therefore, may have been much higher and larger than it is now. Nevertheless, several trenches at the site revealed 5 m of cultural deposits consisting of aceramic and ceramic phases (for the ceramic phase, see below). The aceramic deposits consists of at least two meters of alternating layers of ash and occupational debris. Like many Neolithic sites in the region, Tol-e Sangi yielded a large number of microliths and debitage, obsidian, simple stone tools, and the earliest evidence of labrets, the precursors of the ubiquitous stone and clay labrets from Mushki and Jari.

Hokvan

During a surface survey in 2004/2005, a small (0.5 ha) early Neolithic site was found some 11 km southeast of Qasr-e Ahmad (Bernbeck et al. 2006) (Fig. 1). This small mound is superimposed by the remains of an Achaemenid pavilion. The surface sherds date primarily to the Bakun period, but sherds of a coarse, straw temper plain ware, with basket impression, indicate an early (formative) pottery phase at the site. It is possible that Hokvan contains an aceramic phase as well, but only excavations can determine this.

Formative Fars

This is also a newly identified phase of the Neolithic period in Fars. This phase is documented at Rahmatabad, Tol-e Sangi, Tol-e Qasr-e Ahmad, and Tol-e Hokvan (see the above references).

Qasr-e Ahmad

The most interesting class of Formative pottery in Fars comes from this site (Kamjan et al. 2018, 29). The earliest pottery from this phase is a plain buff, pinkish buff, and red soft ware, some of which bear a red wash/slip, and occasionally burnished (Fig. 2). Later in the sequence, this plain ware is decorated with black or brown thin vertical strokes, zigzags, or, in one occasion, crosshatch (Fig. 2). The shapes consist of simple bowls with rounded rim (Azizi Kharanaghi n.d. and pers. comm.). Obsidian blades and personal ornaments made of Persian Gulf shells are also found in this phase. The flint industry is the same as at all the early Neolithic sites in Fars and similar to the Central Zagros Neolithic flint technology. The mixed subsistence economy continued from the preceding aceramic phase (Kamjan et al. 2018, 36).



Fig. 2. Qasr-e Ahmad. Ceramic sherds of the phase Formative Fars (courtesy H. Azizi Kharanaghi).

Tol-e Sangi

The upper levels of this small site yielded sherds of the Formative phase. Unlike Rahmatabad, the Formative phase at Tol-e Sangi yielded stone and mud brick architecture, with walls and floor covered in red ochre. Tol-e Sangi Formative pottery is plain and ranges in colour from buff to reddish and pinkish buff. Unlike the Formative ceramics from Hokvan, some sherds are decorated with rows of crescent shaped brown lines on the upper part of the vessel (Fig. 3). No other information currently is available from the site (Khanipour et al. 2021).



Fig. 3. Tol-e Sangi. Ceramic sherds of the phase Formative Fars (after Khanipour et al. 2021, 707 fig. 6).

Highly stylized human and animal figurines, extremely rare in Neolithic Fars, as well as personal ornaments made of stone and Persian Gulf shells were also found at Tol-e Sangi. The site also yielded the earliest specimens of stone labrets (Fig. 4C). Labrets have been found in many Neolithic sites in the Middle East and Central Asia, but the majority of them come from Fars. These objects are variously referred to as “ear ornaments” (Fukai et al. 1973), “labrets” (Hole et al. 1969; Delougaz/Kantor 1996), “gaming piece” (Mason/Sarianidi 1972), “muller” (Ghirshman 1938), “cosmetic mortar” (Stronach 1961) and “miniature cylindrical object” (Pollock et al. 2010). However, the clay figurine from Neolithic Chogha Mish, in southwest Iran, and the *in situ* labret in the Neolithic burial at Ali Kosh (Hole et al. 1969, 254) are convincing pieces of evidence that such objects most probably were used as personal ornament and as sign of group (elite?) identity in otherwise undifferentiated social structures (Fig. 4).



Fig. 4. Figurine (A) with probable labret and labrets (B–H) from Fars: A–B Chogha Mish; C Tol-e Sangi (Formative phase); D Tol-e Bashi; E–H unknown provenance. A, D clay; B–C, E–H stone (A–C after Khanipour 2019; D after Pollock et al. 2010, 182 fig. 9.2; E–H courtesy of Iran National Museum).

Hokvan and Rahmatabad

The Formative pottery from Hokvan and Rahmatabad is a plain soft ware with no decoration, although at Rahmatabad some are decorated with simple black lines, very much like those from Tol-e Sangi (Azizi Kharanaghi et al. 2014, 19). The colour ranges from buff to light brown and pink. It is hand-smoothed and occasional basket impression on the lower part of the vessel suggests the use of collapsible baskets to form the pottery (Bernbeck et al. 2006, 36 figs. 10–11). The shapes are simple bowls with rounded rim.

Archaic Fars

Mushki is the type site of this phase. In terms of subsistence strategies, this phase of the Neolithic is the direct continuation of the previous one. Wheat, barley, sheep and goat are still exploited. The subsistence is supplemented by hunting and gathering. The flint industry continues with predominantly blade production, and inter-regional connection is indicated by the presence of Persian Gulf shells, obsidian and bits and pieces of copper. The major difference is the appearance of several outstanding classes of pottery. The early ceramic Neolithic period in Fars is dominated by a number of regional ceramic traditions, of which primarily those of Mushki and Jari are the most dominant in northern Fars; in the southeastern region a different tradition with decorative patterns that may be characterized as “bold and close-line” style prevails. In addition to these major ceramic traditions, there are some that while sharing general characteristics with the two main traditions, seem to suggest a different trajectory of pottery development (these are described at the end). Therefore, the term “archaic” is applied to a variety of the known painted soft wares in Fars and is by no means intended to mask this diversity. This period consists of three phases: Archaic Fars 1, Archaic Fars 1 Transitional, and Archaic Fars 2 (Table 1).

Archaic Fars 1 (Mushki-Jari Realm/Northern Fars, Fig. 5)

Evidence for this phase was first discovered at Tall-e Mushki in the Marvdasht plain (Vanden Berghe 1952; 1954; Fukai et al. 1973). The Mushki ware, the earliest decorated Neolithic pottery in Marvdasht, is a straw/chaff tempered ware and usually has a dark core. The surface is smoothed, red-slipped/washed and burnished, and is usually decorated with dark brown/black linear patterns (Fig. 6). Shapes are simple and include open bowls with sharp carination, the entire area above which is normally decorated. Simple or everted rims occur with flat or dimpled base. Close forms occur but are rare.

The presence of obsidian and a few objects made of copper and turquoise and Persian Gulf shells (Fukai et al. 1973, 37; 64–65; 67), found at Mushki suggests inter-regional connection in this early age. The evidence of architecture at Mushki consists of some type of small rectangular rooms that indicate perhaps the beginning of a settled or semi-settled life in the region. The few thin walls that were excavated at Mushki were made of pisé and mud bricks (Fukai et al. 1973, 16; 20 pl.44). Hole (1987, 54) suggests that such walls may have been constructed to serve as the base of thatched houses or tents. Hole’s interpretation has a real analogy among today’s mobile pastoralists of Lurestan, where, according to Freya Stark (1934, 31), and my own observation, some tribal members lived in tents year-round. These tents were enclosed with low mud walls or stone enclosures.

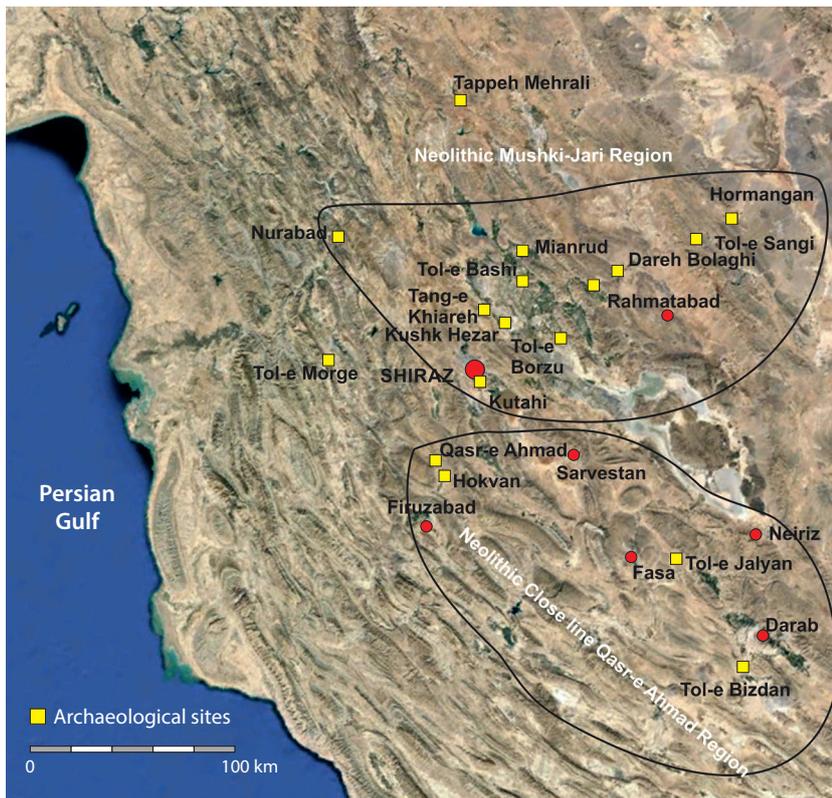


Fig.5. Geographic distribution of Mushki-Jari and Bold/close line pottery traditions (graphics: A.Alizadeh).

To this phase, Sumner (1994, 293 table 1) assigned six sites in the KRB. Outside the KRB, Siyah Gorbazjun, in the Ramjerd area (Vanden Berghe 1954, 401), Tall-e Gud Rahim in the Sarvestan region (Dittmann 1986, 665 fig. 10,2–5), southeast of Shiraz (Fig. 5), and Tol-e Nurabad in the Mamasani region, have yielded Mushki and Mushki related ceramics². Aurel Stein's excavations at Kanakan, Se Toli and Gud Rahim, in the Fasa region (Dittmann 1986, 646; 648; 662; 664 figs. 2–3; 10–11), yielded one type of Mushki decorated ware, but other prominent Mushki types were absent. Sumner (1977, 295) reported, but not illustrated, that typical Mushki and Jari motifs were also present at Tall-e Morge in the Kazerun region southwest of Shiraz. Mushki pottery is also found at rock shelter BV130 in the Tang-e Bolaghi area (Tsuneki et al. 2007, 6). Bowls decorated with various types of cross-hatch patterns and wash below carination, some burnished (Alden et al. 2004, 33 fig. 5,2.22; 34 fig. 6,1–14; 35 fig. 7,3–4), point to the presence of the Mushki phase at Kushk-e Hezar, in the Beiza district (Fig. 1). But the typical and prominent Mushki painted pattern of zigzags and dots (Fig. 6) is not reported from that site, though this may be an accident of discovery. All these Mushki sites are located northwest of the Kavar-Darab-Fasa region where the characteristic "bold and close-line" ware dominates.

Evidence for the fauna and flora in this phase at Mushki comes exclusively from our 2004 excavations at Mushki. Based on that evidence (Mashkour 2006; Miller/Kimiaie 2006), these early communities practised a mixed economy of hunting, herding and limited farming. Barley is the only cultivated cereal found at Mushki; otherwise the flora remains belong to wild species suitable for fodder, although einkorn and emmer wheat were present elsewhere in the region from the earlier aceramic and formative phases onwards (Tengberg/Azizi Kharanagi 2016). No sheep was identified among the fauna remains and the number of identifiable goats was very low, a fact that contradicts the suggestion of a pastoral economy for this phase. Wild species of bovine and equids, however, are well represented. While at Mushki equid hunting was predominant, in other contemporary sites sheep and

- 2 Only five pieces of typical Mushki red painted ware were discovered at Nurabad, where much of the pottery of the early phase at Nurabad is an unrelated bichrome soft ware (Potts et al. 2009, figs. 3.65,1802–3; 3.66,1789; 3.67, 1763–4). Considering that three of these are found associated with the typical Jari B "hook motif," it is doubtful whether Nurabad phases 27–25 were contemporary with Mushki, especially that the available radiocarbon dates also point to a later phase, see Potts et al. 2009, 67–70 table 3.2.



Fig. 6. Typical Mushki painted pottery (after Nishiaki 2003).

goat were the most important species exploited, with hunting equids as supplement. As M. Mashkour (2009, 138) points out, Tall-e Mushki stands out among all the known Neolithic sites in Fars as a kind of setback, exhibiting a 'Mesolithic' type of subsistence strategy.

Tall-e Morge

This site, situated near Kazerun (Fig. 1), is only known from Sumner's (1977, 295) brief note. According to Sumner, the mound was discovered by David Freidel who took Sumner to the site and gave him access to his notes and pottery drawings. According to Sumner, the painted soft ware at Morge is similar to that of Kutahi, but it also contained a bichrome buff and red slip pottery with geometric patterns painted in black and orange. Sumner also reported, but not illustrated, the presence of typical Jari and Mushki ceramics at the site, but the stratigraphic relations among these soft ware horizons at Morge is completely unknown.

Archaic Fars 1 (Bold/close-line realm, Southeastern Fars)

Following the Formative phase, a parallel early ceramic Neolithic culture with a class of painted ceramics different from those of Mushki-Jari developed in southeastern Fars (Fig. 5). The type site of this southeastern ceramic culture is Qasr-e Ahmad in the Kavar region. This type of ceramic with bold decorative patterns and lines closely and neatly executed is also found in the Fasa and Darab regions, though with some regional variations.

The first evidence for the bold and close-line ceramics was found in 1971, although Stein (1936) had excavated examples of this ware in the Fasa region but did not publish them – Dittmann published some in his 1986 book. Between 1971 and 1972, Pierre Miroshedji (1972) conducted a series of surface surveys in the valleys of Fasa and Darab, 150 and 250 km southeast of Shiraz. He found twenty sites (15 in Fasa and 5 in Darab) with pottery unrelated to any other prehistoric ceramics in Fars, which he designated as Bizdan and Jalyan, after the type sites (see below). In the absence of any ¹⁴C date from the region, he nevertheless dated this new ceramic to the 5th millennium BC and compared it to the then known ceramics of Mushki. Recent discoveries in the region have shed much light on what Miroshedji discovered some 50 years ago.

Bizdan

The Bizdan pottery is a painted straw-tempered, soft ware that was found only in the Darab region of Fars. Open bowls with simple lip and sharp carination, as in most Neolithic ceramics, are the common forms. The predominantly maroon bold geometric designs with close lines decorate occasionally slightly burnished buff-slipped exterior surfaces (Miroschedji 1972, 1 fig. 2,1–10). Some of the open forms exhibit basket impressions which may have been used in shaping the vessels (Fig. 7).

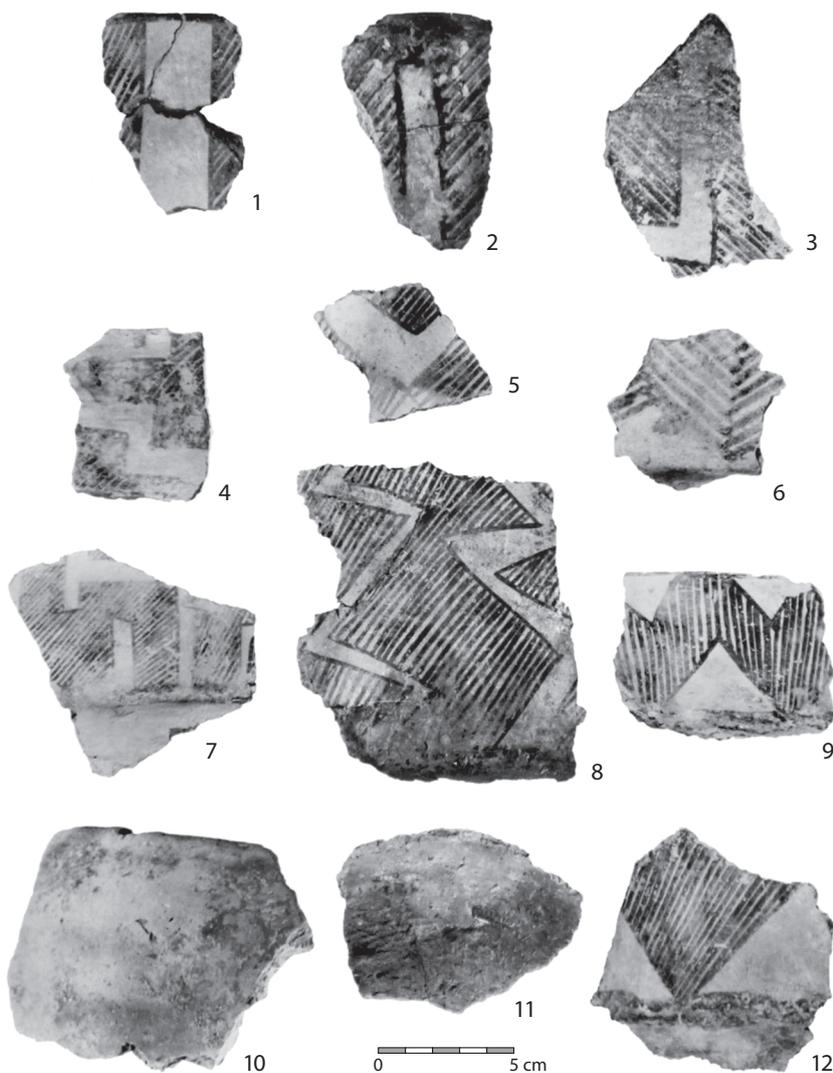


Fig. 7. Bizdan pottery (courtesy of P. Miroschedji).

Jalyan

The Jalyan ware has a finer paste and is less porous than that from Bizdan. This ware is reported from both the Darab and Fasa regions (Fig. 5). The painted pottery is red-slipped with a slightly burnished surface; it is decorated with dark geometric patterns consisting primarily of zigzags and step patterns (Miroschedji 1972, 2 fig. 2,14–25). According to Miroschedji, the Bizdan and Jalyan wares are never found together and the fact that some of the sites are very close to one another in the Darab region suggests in his opinion that Bizdan may be earlier than Jalyan.

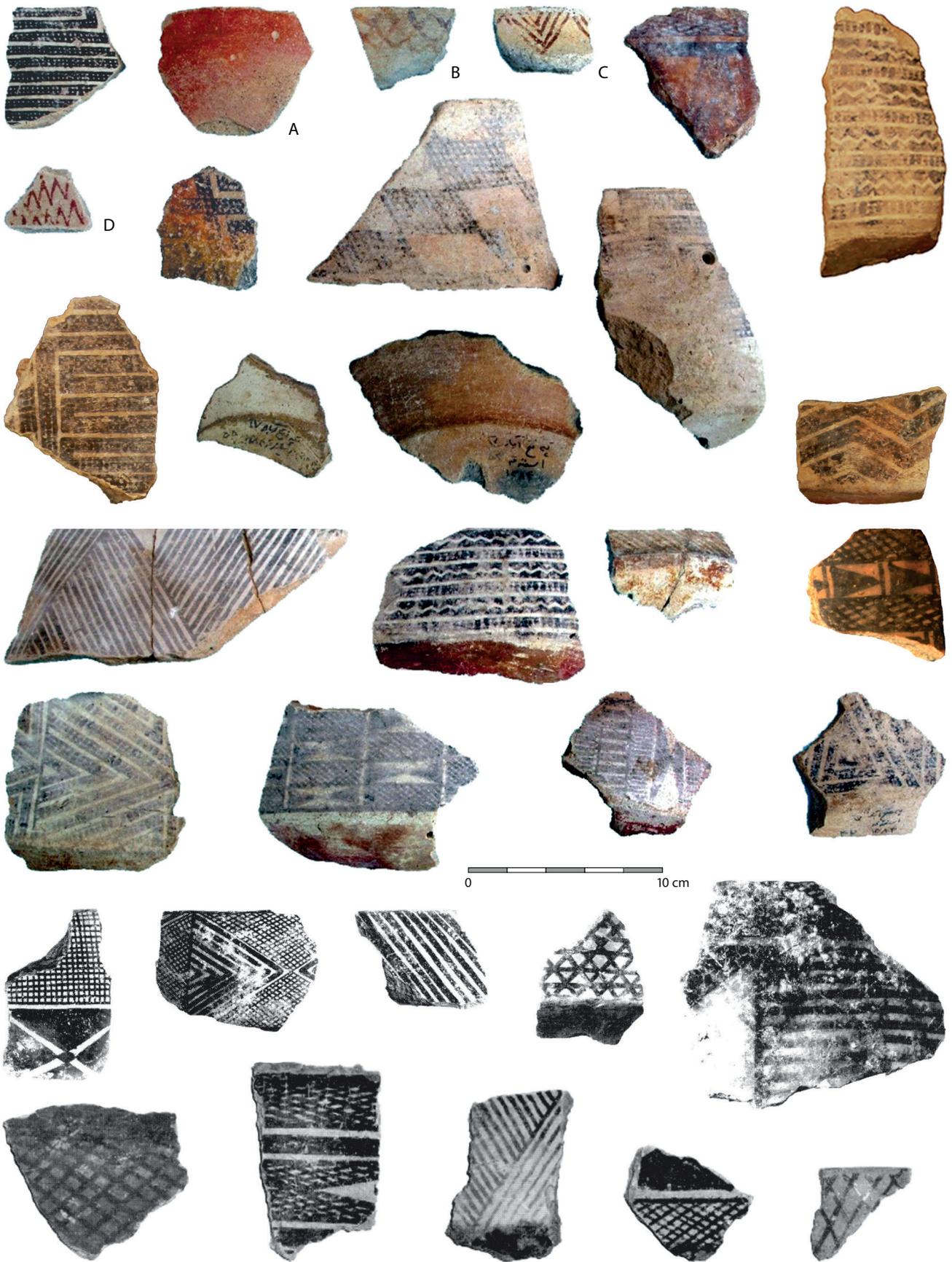


Fig. 8. Bold and close-line Archaic Fars 1 pottery: Top (colour) Gov Koshi (A-D Formative); bottom (B/W) Qasr-e Ahmad (top courtesy of N. Alidadi Soleimani; bottom after Bernbeck et al. 2006, 35 fig. 8-9).

Qasr-e Ahmad

The closest parallel to the Fasa and Darab ceramics comes from Tol-e Qasr-e Ahmad. This site was first surveyed in 2004 (Bernbeck et al. 2006). In 2010, Hossein Azizi Kharaghani from the Iran National Museum excavated the site for one season. This Neolithic site is located in the Qara Aghaj river valley, some 60 km southeast of Shiraz. Qasr-e Ahmad was first settled in the aceramic period which, as at Rahmatabad, is followed by a formative and Archaic 1 phases. The ceramic from the latter phase is the most sophisticated painted Neolithic pottery in Fars (Bernbeck et al. 2006, 35 figs. 8–9). The primary painted pattern consists of neatly and closely spaced crosshatch combined with several subsidiary elements (Fig. 8).

The 'close-line' pottery of Qasr-e Ahmad has parallels in the ceramic Neolithic site of Gav Koshi (Alidadi Soleimani/Fazeli 2018) (Fig. 8), west of Jiroft in Kerman province, some 300 km away, and radiocarbon dated to 6200–6000 cal BC. This remarkable site has substantial mud brick architecture with red painted walls and possibly a public building. Among the known painted patterns of Qasr-e Ahmad, the crosshatch design is found elsewhere in northern and western Fars, i.e., at Mushki (Fukai et al. 1973, pl. 19,6), and Tall-e Morge (Sumner 1977, 298 fig. 4d), but the closest parallels are found at Kushk Hezar (Alden et al. 2004, 35 fig. 6,1–6).

Tol-e Sabz

At about 1325 m a.s.l., Tol-e Sabz is located in the northwest of the Firuzabad plain, some 80 km south of Shiraz (Figs. 1; 5). The mound measures 1.8 ha and stands 4 m above the surrounding plain. The northern part of the site has been levelled and it was from this area where the Neolithic sherds were collected during a surface survey in 2013 (Mansouri/Ahmady 2015). Apart from pottery and flint blades, not much else is known. Both plain and painted ceramics were found on the flat, levelled northern section of the site. The painted pottery is a chaff tempered soft ware and consists of red-on-red and black-on-buff types with simple rounded or everted rim; some have a carinated body (ibid. 4 fig. 5). The plain ware ranges from buff to pinkish buff and red; the shapes are simple with dimple base. Except for one piece (ibid. fig. 9,10), which is very similar to some Transitional/early Jari type, although the paint is red, the rest of the painted patterns are much closer in style and execution to those from Qasr-e Ahmad and Jalyan/Bizdan than those from the Mushki-Jari tradition in northern Fars.

Minarud

In the KRB, in terms of pottery, this mound stands out as a singleton. Tol-e Mianrud is located in the Abraj plain, 15 km north of Tol-e Bashi (Fig. 1). The site was excavated for three seasons from 2008 to 2011, but poorly reported and except for pottery no other artifacts are discussed (Karami et al. 2018). The uppermost layers of the site contained deposits dated to the Bakun B2 period that were immediately above remains of Bakun B1 with no erosion. Below the remains of Bakun B1, a thick deposit was reached that contained two classes of soft, straw tempered painted wares (Fig. 9). One class has a creamy buff to white colour slip and is sparsely decorated with simple single or double bands close to the rim, very much in the style of late Jari (Karami et al. 2018, 70 fig. 7). The earlier class of pottery has a red fabric with a reddish pink to buff slip. The geometric patterns range in colour from dark brown to black. They consist of chevrons, multiple zigzag lines and cross hatched bands, similar in design to the pottery characteristic of southeastern

Fars found at Bizdan, Jalyan, Qasr-e Ahmad and Tol-e Sabz (Fig. 9). To date, Mianrud is the only site in the KRB with typical bold/close line painted patterns, leaving a big question mark in the mosaic of Fars Neolithic ceramic tradition.



Fig. 9. Tol-e Mianrud. Ceramic sherds of the phase Archaic Fars 1 (after Karami et al. 2018, 66 fig. 3).

Archaic 1 Transitional Phase

In comparing the inventory of the known material culture of the Mushki phase with the following Jari phase, the only sharp change is in the pottery, and perhaps in the intensification of farming and animal husbandry. Mud brick and pisé, labrets/cosmetic plugs, copper, Persian Gulf shells, and obsidian are present in both phases. This type of continuity makes the attribution of the new pottery tradition (Jari painted buff) to the migration of new people into the Marvdasht area highly improbable. However, unlike the type of gradual stylistic changes in pottery that we witness in the prehistoric sequences of Susiana, southern Mesopotamia and the Iranian central plateau, where new decorative patterns and surface treatment are incorporated in and occur side-by-side the old tradition and gradually replace it, the transition from Mushki pottery manufacture to that of Jari is drastic and almost complete³. Nevertheless, stylistic and stratigraphic evidence from the old and new excavations at Mushki indicates that the earliest Jari ceramic occurs briefly side by side the Mushki pottery before it completely replaces it (see below).

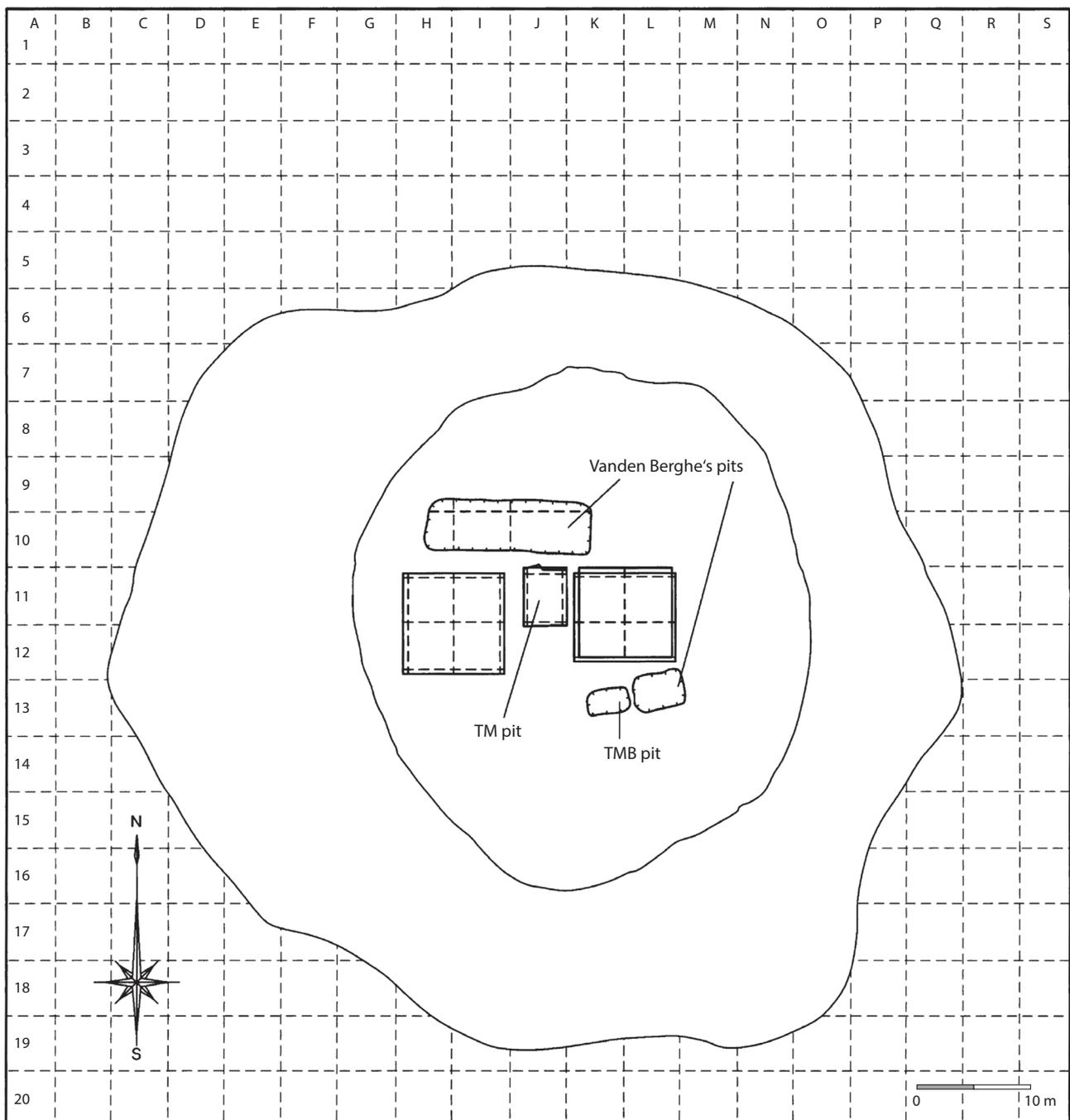
The pottery evidence for this transition was first published by the Japanese from the site of Mushki, where in a trench, designated as TMB, nothing but Jari buff ware was found (Fukai et al. 1973, 33–34 pls. 23–24). But it was Vanden Berghe who first discovered this class of painted buff pottery in his trench at Mushki, and erroneously dated it to the Jari B period⁴. Vanden Berghe did not publish his Jari sherds from Mushki, but mentioned in his article that he found three Jari sherds mixed with the typical Mushki pottery (Vanden Berghe 1954, 401). He also mentioned that in his excavations at Tall-e Siyah Gorbazjun, in the Ramjerd area, he found similar mixture of Mushki and Jari sherds. Vanden Berghe does not mention in which of his two trenches at Mushki he found Jari sherds but considered the buff

- 3 Except for a crosshatch decoration and a simplified version of the typical Mushki design with terminal dots on diagonal straight lines (for example, Fukai et al. 1973, pl. 33,1,7; 33,2,2), all others are new.
- 4 The closest parallels for the pottery from TMB are found at Jari A, Level III (Egami et al. 1977, pl. III,1–22); at Jari B only Level 8, the basal level, yielded three parallels (Hori/Maeda 1984, pl. 3, bottom row; Maeda 1986, fig. 7,8–11; Nishiaki 2010, fig. 8).

painted Jari pottery chronologically earlier than Mushki because the latter was found “above” the former (Vanden Berghe 1952, 219).

This is a peculiar conclusion since Vanden Berghe is specific that his “Jari B” type sherds were found *mixed* with those of Mushki sherds, which logically points to the contemporaneity of the two ceramics. But we know that Vanden Berghe excavated two large trenches at Mushki, one at the summit of the mound, ca. 30×10 m, and another, ca. 10×7 m, some 30 m southeast of the first one (Fig. 10). This smaller trench is at a lower elevation and very close to the TMB trench where the Japanese team discovered only Jari buff painted. So, it is very likely, as T. Matsutani also suggested (Fukai et al. 1973, 77), that the difference in elevation between the surface of Vanden Berghe’s trenches was the basis for his consideration of the chronological priority of Jari over Mushki. This implies that his smaller, and lower, trench must have

Fig. 10. Tall-e Mushki. Contour plan with the trenches of L. Vanden Berghe and the Japanese campaigns (after Nishiaki 2010, 4 fig. 2).



yielded only Jari pottery just as TMB did, since, despite what Matsutani suggested (Fukai et al. 1973, 78), Vanden Berghe could not have reached his conclusion only based on the three Jari sherds mixed with Mushki ceramics in his higher and larger trench⁵. Therefore, as we discuss in this section, a transitional phase can only be applied to sets of ceramics that contain both Mushki and the early Jari types. To date, sites with stratified mixture of Mushki and Jari ceramics include Tall-e Mushki, Rahmatabad, and Hormangan in the Bavanat region in northern Fars (see below). Based on this criterion, Tol-e Bashi or any other sites with early Jari/TMB ceramics without Mushki painted red ware cannot be considered as transitional (see below).

As just mentioned, the case for most probably a short transitional phase from the Mushki to Jari phases cannot be based on the available absolute dates, as they are very close to and overlap one another⁶. The vagaries of the available calibrated radiocarbon dates from the relevant sites (see below), and the short duration of the transitional phase clearly show that we cannot rely on absolute dates to determine the chronological position of Tol-e Bashi. Pottery stylistic analysis, however, is the best tool at our disposal at present.

Levels V to II at Tol-e Bashi are thought to represent a transitional phase from Mushki to Jari (Pollock et al. 2010). The earliest level at Bashi (Level VI) is dated to 4800–4550 cal BC, obviously too late⁷; Levels V and IV dates range from 6230 to 5720 cal BC (Pollock et al. 2010, 262–264 table 19.1). The earliest level at Mushki (Level 22) is dated to 6235–6063 cal BC (Alizadeh 2006, 121 table 10; Mashkour/Bailon 2010, 228 table 14.9). Levels 17 and 12 of our 2004 excavations at the site dated respectively to 6180–6000 and 6210–6020 cal BC (Alizadeh 2006, 120 table 9). The earliest level at Jari B (Level 8) is dated to 6270–5750 cal BC and the date of the entire sequence ranges from 6270 to 5610 cal BC (Alizadeh 2006, 121 table 11; Mashkour/Bailon 2010, 228 table 14.9; Nishiaki 2010, 124). Earliest phases at Nurabad yielded a few Jari and Mushki sherds. The absolute dates from these phases (Phases 26–20) range from 5900 to 5600 cal BC (Potts et al. 2009, 67–69; Weeks et al. 2006, 17–18 fig. 11). The dates obtained for the Rahmatabad ceramic phase range from 7450 to 7070 cal BC and for the early pottery Neolithic phase, just below the Mushki deposits, the date ranges from 7140 to 7050 cal BC. The phase with the Mushki/Jari pottery is dated to 6218–6028 cal BC (Azizi Kharanaghi/Khanipour 2014, 73 table 2; Azizi Kharanaghi et al. 2014, 7–8 table 1 figs. 11–12). What all these various dates show is that the Neolithic sequence from the beginning of Mushki to the end of Jari B covers the late 7th to the first half of the 6th millennium BC, approximately from 6200 to 5600 cal BC, but none provides any date for the brief transitional phase.

To date, Tol-e Bashi is interpreted by its excavators as the type-site for the transitional phase. This chronological position in the Fars prehistoric sequence is based squarely on ceramic stylistic analysis. On the same basis, as well as stratigraphic observation, we argue that the transitional phase began at Mushki itself and that Tol-e Bashi represents an early Jari phase, contemporary with Mushki TMB, Jari A III⁸, and perhaps the basal level of Jari B lowest level, Level 8 (Nishiaki 2010, 121 fig. 10).

Figure 12 and Table 2 show the six types of transitional Jari painted sherds we found in Mushki in 2004 in association with Mushki pottery. They first appear together in Level 5 (late in the sequence) of our main stratigraphic trench and continue in the levels above until the end of the sequence (Fig. 11)⁹. The top elevation of our stratigraphic trench is about 70 cm lower than the surface of the TMB trench. Level 5 is about 110 cm below the surface of both Vanden Berghe's and the TMB trenches. So, except in the upper five levels of our stratigraphic trench, Jari painted sherds were not found in any other trenches. This implies that Jari painted appeared late in the sequence, overlapped with Mushki for a short time, and replaced it completely afterwards.

- 5 It is also possible that Vanden Berghe's conclusion was influenced by the pottery sequence discovered at Sialk where Sialk 1 buff ware is earlier than the Sialk 2/Cheshmeh Ali red ware, as in his articles Vanden Berghe frequently refers to them to make his point.
- 6 Radiocarbon dates do not allow a clear separation of the Bashi "Transitional" and Jari B phases (Pollock et al. 2010), and this transitional phase is based on stylistic grounds. The Bashi ceramics are related to those found in Mushki TMB trench as well as those from the lowest level at Jari A (Jari A level III), and the basal level at Jari B (Level 8, and possibly Level 7).
- 7 This basal site level at Bashi is dated to Mushki TMB trench/Early Bashi (Pollock et al. 2010, table 5.24); layer 4 in Unit C belongs to site Level VI (ibid. table 4.2) and is described as a sterile soil with animal burrows (ibid. 62). Nevertheless, the three sherds (ibid. figs. 5.93, 5.95 and 5.97) found in this layer are thought of as representing an early Bashi/TMB phase, even though these three sherds must have been intrusive from the upper Levels V or IV. The ¹⁴C late date of this level (4800–4550 cal BC) also indicates ancient activities by animals, which must have misplaced these upper sherds in this sterile layer.
- 8 Except for a short report (Egami et al. 1977), nothing else is known from Jari A. Apparently, the occupation in the earliest phase at Jari A was limited. The pottery assigned to the earliest Level III is obviously a mixture of early and late Jari ceramics. Some of them (ibid. pl. V, 1–22) are early Jari types with parallels in Mushki TMB. The rest (ibid. pl. V, 23–32) are typical late Jari with parallels in Jari B, levels 3–1 (Nishiaki 2010, fig. 11).

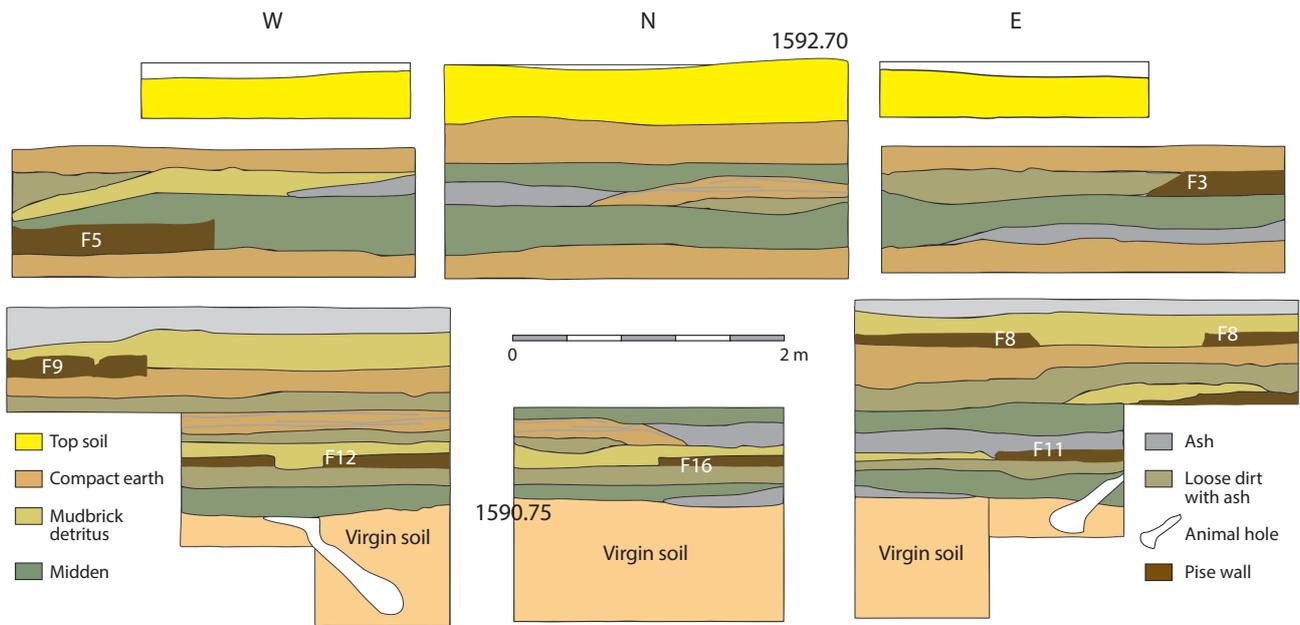


Fig. 11. Tall-e Mushki. Section drawing of trench 1, 2004 season (graphics: A. Alizadeh).

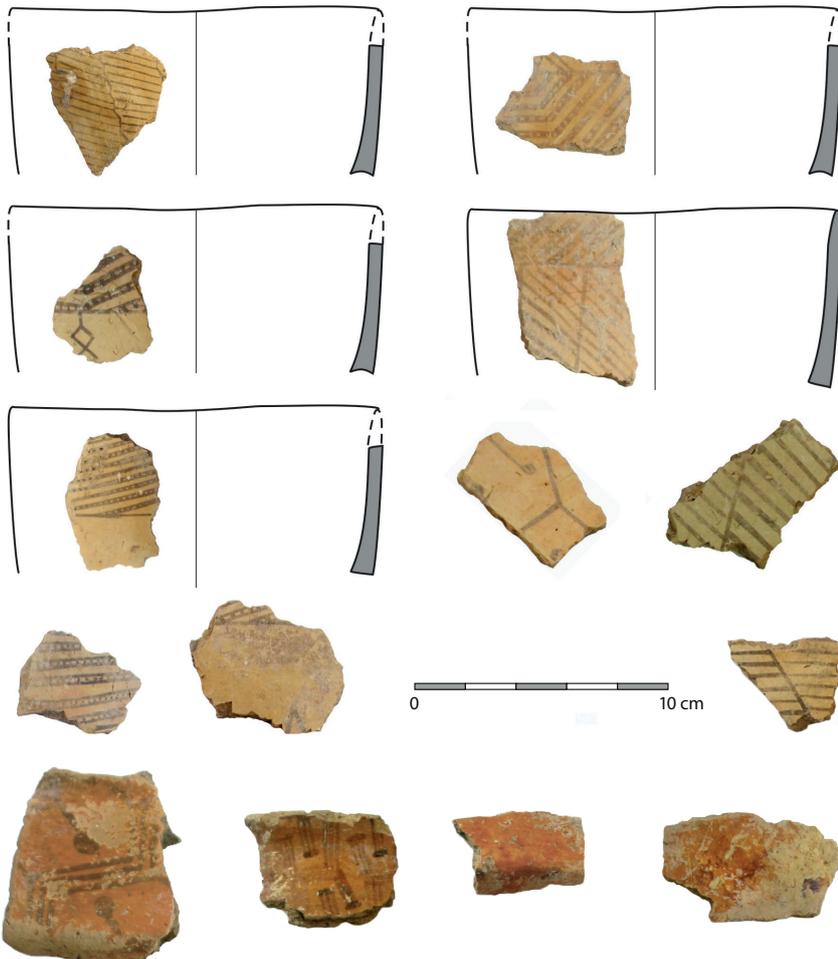


Fig. 12. Tall-e Mushki. Transitional Mushki-Jari pottery from Levels 5-2, 2004 season (photos and section drawings: A. Alizadeh).

Table 2. Earliest Jari buff painted pottery at Tall-e Mushki from trench 1, 2004 season (TD = Transitional Design).

Design No.	TD 1	TD 2	TD 3	TD 4	TD 5	TD 6
Mushki Provenance	Level 4	Level 2	Level 3	Level 4	Level 3	Level 5
Jari A	X	X	X	X	X	
Jari B					X	
Bashi		X	?	X	X	
Rahmatabad	Variant	X	X	X	X	X
Hormangan		X		X	X	
Kushk Hezar			X	Variant	X	
Mushki TMB	Variant	X	X	X with dots	X	X

For ease of reference, we have assigned numbers to the six Jari types we found in association with Mushki painted in our 2004 season (Fig. 12). As can be seen in Table 2, Types 1–6 are also found at Rahmatabad with typical Mushki red ware (Fig. 13). All these types also occur at TMB; as they do

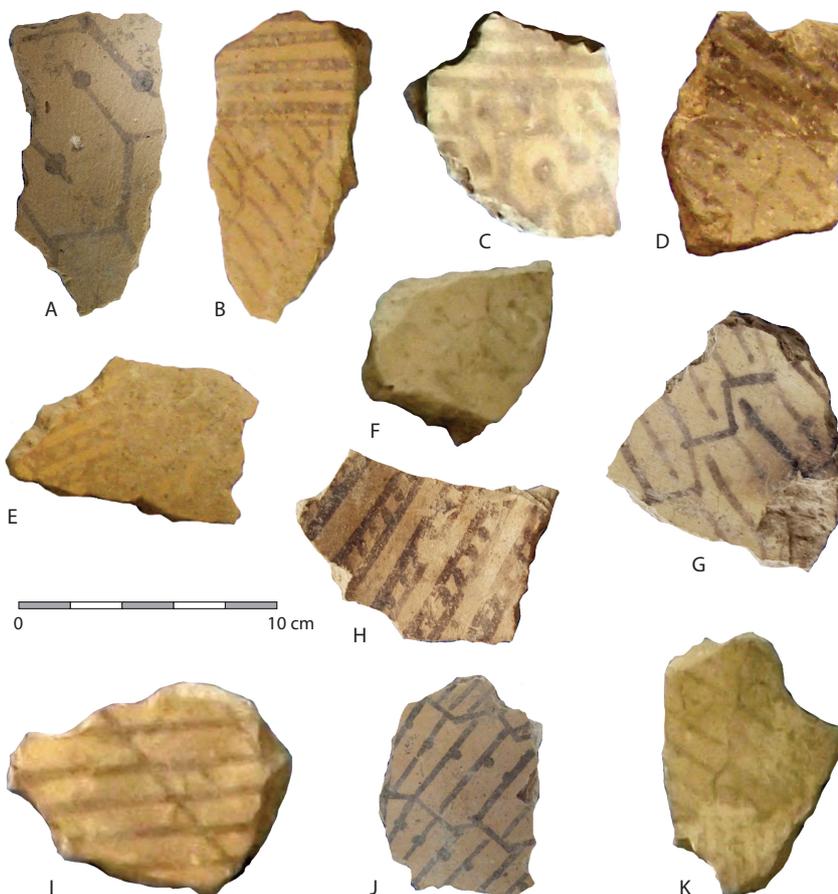


Fig. 13. Rahmatabad. Earliest Jari Painted examples from Mushki contexts (courtesy of H. Azizi Kharanaghi).

in Jari A, level III (the lowest level), but without any Mushki red painted. At Bashi, only Types 2, 4, 5 and possibly 3 are attested, with no Mushki ceramic. Mushki TMB produced all these transitional types with Types 1 and 4 as variant, but no Mushki red ware. Nurabad has several pieces of genuine Mushki painted red ware, two of which are found in the same stratified context with two Jari painted buff sherds. But these two sherds are decorated with what is known as “hook motif” and are not known from Mushki TMB, our stratigraphic trench, or at Rahmatabad and obviously belong to a later phase of Jari. At Bashi, the “hook motif” occurs late in the sequence (Bernbeck 2010, 150–151 figs. 5.104–5.122). At Hormangan, only Types 2, 4 and 5 were found in the same level with Mushki painted red ware (Khanipour et al. 2021, 6 fig. 3). Of all these transitional types, only Type 5 survived and is found in the lowest level at Tall-e Jari B (Nishiaki 2010, 121 fig. 10,19–20).

Hormangan

Apart from Mushki and Rahmatabad, Hormangan is the third site in Fars with Mushki-Jari transitional ceramics. At an elevation of 2364 m a.s.l., Hormangan is a small, 0.5 ha, shallow site in the Bavanat region of northern Fars, some 60 km northeast of Rahmatabad. Excavated for one season in 2016 (Khanipour/Niknami 2018; Khanipour et al. 2021), the site yielded two occupational levels; the lower level produced only fire pits and layers of ash and debris. The upper level produced substantial pisé architecture. As almost all Neolithic architecture in Fars, the walls and even the floors were covered with red ochre. This architectural level yielded typical Mushki pottery mixed with early Jari ceramics (Fig. 14). Basket impressions were clearly visible on the lower parts, below carination, of the vessels. Large number of “labrets” and conical “tokens” made of clay and stone and pierced beads made of Persian Gulf shells also were found, as well as blades made of flint and obsidian. The flint industry is very much like that found at Mushki and Rahmatabad. Bits of copper and a copper pin were also part of the assemblage found at this site. No information on the fauna and flora is available.

The fauna and flora evidence for this phase is scant. Hulled and free-threshing barley (*Hordeum vulgare*), emmer wheat (*Triticum dicocum*) and free-threshing wheat (*Triticum cf. aestivum*) are the major crop plants (Azizi Kharanaghi et al. 2014; Tengberg/Azizi Kharanaghi 2016). No information on the fauna from Rahmatabad or Hormangan is available to date, but the evidence from the immediately following phase at Bashi attests to the presence of sheep, goat, some cattle as well as gazelle there (Mashkour/Bailon 2010; Pollock et al. 2010, 292). In addition to the pottery, the presence of shell ornaments, labrets and copper in this phase strongly suggests continuity from the preceding Archaic Fars 1 (Javeri et al. 2010; Azizi Kharanaghi et al. 2014, 18; Potts et al. 2009, 438 fig. 3.189).

Archaic Fars 2

This period is represented by the Jari culture that is characterized by a soft, painted buff ware and the complete absence of the Mushki red painted one. It may be divided into an early and late phase. The basal level III at Jari A¹⁰ and Bashi Levels V to II¹¹, Jari B Level 8, and possibly Level 7, where an early version of the so-called “ladder motif” appears (Nishiaki 2010), represent the early phase and the entire sequence at Jari B above Level 7 represents the late phase.

Jari buff painted is a straw-tempered, brittle soft ware. The paint ranges in colour from black to brown to rarely red. The primary motifs include a

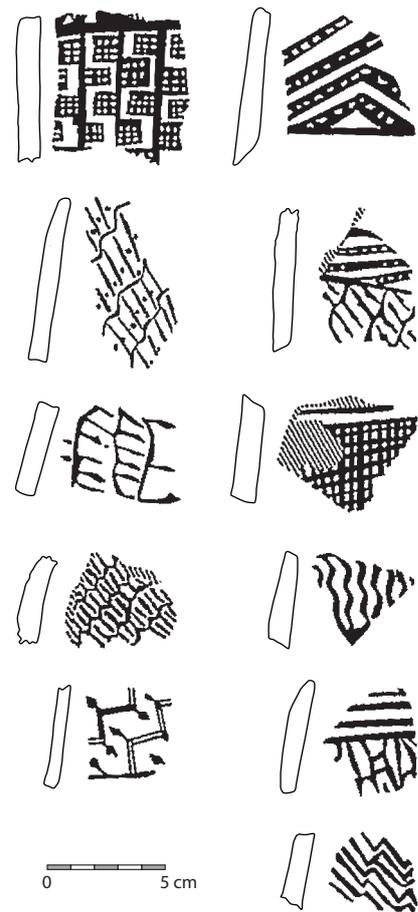


Fig. 14. Hormangan. Ceramic sherds of the phase Archaic 1 Transitional (after Khanipour et al. 2021, 698 fig. 3 and courtesy of M. Khanipour).

- 10 The deepest level at Jari A, Jari A III, was only reached in Square E, where Jari A painted soft ware was found on virgin soil. This level was separated from Jari A II (Bakun B1) by 40 cm of erosion. The adjacent 10×10m A and B squares did not produce any architecture and the remaining C–D, F–H squares contained architectural remains of Jari A II and I, contemporary with Early Fars (Bakun B1) and Middle Fars 1 (Bakun B2) phases. Our large and small 2004 trenches at Jari A produced neither architecture nor Jari A painted sherds. This suggests that Jari A occupation at Jari A was very limited, but we cannot account for the mixture of the early and late Jari at the site and the only published report does not address this problem (Fukai et al. 1973, 33–34 pl. 42).
- 11 At Bashi, only one sherd with the “ladder motif” is attributed to Level III, two come from Level 1 and the remaining seven are from unstratified contexts (Bernbeck 2010, 142–143).

series of parallel diagonal lines with either strokes or dots in-between (Fig. 15). The main decorated panels are almost always delimited by upper and lower thick and thin bands. Open bowls with sinuous bodies and straight or slightly everted rims are common. Some later examples bear a whitish cream wash (Nishiaki 2010). As at Mushki and Jari A, plain, coarse pottery is also a component of the painted ware. The Jari ware is reported by Sumner (1977) from 48 sites in the Marvdasht plain and five in the Sarvestan-Shiraz region, indicating a large population/settlement increase from the preceding phase¹². Unlike Mushki settlements, according to Sumner, Jari sites are found in places where spring irrigation was not possible, which Sumner (1990, 97–99; 1994, 48) sees as the initial phase of irrigation agriculture.



Fig. 15. Late Jari B pottery (after Nishiaki 2003).

The architecture from the Archaic 2 Fars phase from Jari B appears more solid than that found at Mushki and Jari A. The published plans show small rectangular multi-room houses with open courtyards, hearths, and ovens (Egami et al. 1977, pl. II,E; Maeda 1986, 81 fig. 2; Nishiaki 2000; 2010, 116 fig. 3). Pisé walls were used throughout the entire sequence at Jari B (Nishiaki 2010, 115; 119). If we extrapolate from Hole's suggestion (1987, 54) that the Mushki phase represents impermanent campsites, it is possible that the Archaic Fars 2 phase represents a sedentarization phase in Fars.

With the single exception of pottery style, the continuity of material culture in the entire Archaic Fars period, from Mushki, to the Transitional and throughout the early and late Jari phases is remarkable. Persian Gulf shells, labrets, copper, microliths (with slight change, see below), bone tools, obsidian, and pisé and mud brick architecture continue. The complete lack of spindle whorls from Mushki, Jari A and B as well as from Bashi and Rahmatabad is also remarkable, indicating that perhaps plant fiber such as flax was used for clothing.

No faunal and floral reports are available from the Japanese excavations and the following evidence comes exclusively from our 2004 excavations at Jari A and B. Some domesticated barley existed, but, like at Tall-e Mushki, the bulk of the plant remains belongs to wild species, particularly those that make good fodder (Miller/Kimiaie 2006, 110). Sheep and goats dominate with some evidence of domesticated cattle; small amount of gazelle was also present in the collection (Mashkour 2006, 105). The slight change

¹² Jari painted ceramic is also a small component of the pottery assemblage of Phases A26–A25 at Tol-e Nurabad: Weeks et al. 2009.

in the lithic industry from Mushki to Jari also suggests this mixed economy (Abe/Azizi Kharanaghi 2014).

Kutahi

The Kutahi ware has been reported from only one site, Tall-e Kutahi, now completely buried under the expanding city of Shiraz (Fig. 1). Alden also reports that some of the painted decorations at Kushk-e Hezar (Fig. 5) are comparable to the Kutahi painted ware (Alden et al. 2004, 38). Tall-e Kutahi was first discovered and surveyed by P. Gotch (1968, 169 no. 35) but the pottery was neither described nor illustrated. Sumner (1977) revisited the site and published a description of the ware as well as samples of the pottery. He reports of the presence of Mushki red painted ware at the site but does not publish any. Recent examination of Gotch's collection at the Narenjestan Museum in Shiraz failed to locate any Mushki pottery (Mansouri 2020, 10). According to Sumner (1977, 295) the Kutahi ware's paste, surface treatment and forms are almost identical to those of the Jari ware. Sumner also reported that apart from the typical Jari buff painted pottery (Fig. 16), another class of pottery (Kutahi ware) is found at the site but the relation between the two classes of ceramics is not known. The painted patterns of this type are distinctive and rather unusual in the way they are applied. The motifs consist of bold, geometric patterns. The zigzags patterns on some black and red broad panels are created by incisions (Sumner 1977, 295 fig. 4f-i). This characteristic decorative technique is similar to the decoration on some Jari B open bowls that combined painted and scratched borderlines. The Kutahi bold painted patterns are vaguely reminiscent of those reported from Qale

Fig. 16. Kutahi. Jari pottery (after Mansouri 2020, 11 fig. 10).



Rustam, a Neolithic site in the Khana Mirza plain, near Lurdegan, in the Zagros Mountains (Fig. 1). A single body sherd with sharp carination from Qale Rustam has a decoration that consists of groups of parallel lines forming 'Y' and inverted 'Y' shapes (Zagarell 1982, 142 fig. 9,1; Bernbeck 1989, Abb. 85a). This decorative scheme occurs in a variety of shapes at Mushki (Fukai et al. 1973, pls. XLIX p19.20.23.24; XLVII 5–6).

Variant Archaic 1–2 Painted Soft Wares

Tol-e Nurabad, in the Mamasani region, northwest of Fars, Tol-e Khiareh, in the Beiza district, and two caves in the Arsanjan region (Fig. 1) have produced pottery unlike those of the Mushki-Jari of northern Fars and bold/close-line of southeastern Fars. While the Nurabad archaic phase dates to the early 6th millennium BC, the chronological position of Tol-e Khiareh and the two Arsanjan caves is unknown, though they may well belong to the same time span.

Tol-e Nurabad

Tol-e Nurabad is in the Mamasani region of Fars some 120 km northwest of Shiraz (Figs. 1; 5). While its Neolithic phase is contemporary with other Neolithic sites in Fars, its monochrome and bichrome decorated pottery does not share any traits with either Mushki-Jari tradition of northern Fars or the bold/close-line tradition of the southeast. The closest tradition to the Nurabad one is found at Qale Rustam in the Bakhtiyari Mountains (Bernbeck 1989). Nevertheless, the presence of labrets links Nurabad to the Mushki-Jari cultural realm (Weeks et al. 2009, 64 fig. 3.189).

Tol-e Nurabad is the largest site in the Mamasani District. It is situated at c. 965 m. a.s.l. with a height of c. 23 m above the surrounding plain, and covers an area of c. 9 ha, although the size of the Neolithic settlement is not known. The lowest 5 m of the site in Trench A contained deposits dated exclusively to the ceramic Neolithic period. In the limited space of the Neolithic exposure, fragmentary walls made of mudbrick and pisé were found (Weeks et al. 2009, 33–34).

The pottery is a straw/chaff tempered soft ware and generally well-fired. The ware ranges in colour from buff to light brown and orange with a grey core. The surface is usually slipped/washed and burnished. The most common forms are bowls with simple rounded rims but jars also occur. Bases are primarily flat, and carination is rare. The decorative geometric decorations are painted in both monochrome and bichrome in red, black, and brown (Weeks et al. 2009, 40–45). Nurabad has yielded several pieces of genuine Mushki painted red ware, three of which were found in the same stratified context as two Jari painted buff sherds. But these two sherds are decorated with what is known as "hook motif," which is stratigraphically much later than Mushki and must have been intrusive¹³. The "hook motif" has never been found with Mushki pottery in any other known site. Considering that three of the Mushki type sherds are found associated with typical Jari B "hook motif," it is doubtful whether the Nurabad phases 27–25 were contemporary with Mushki, especially as the available radiocarbon dates also point to a later phase (see Weeks et al. 2009, 67–70 table 3.2).

Tang-e Khiareh

The badly damaged site of Tang-e Khiareh is a low mound located some 10 km northwest of Kushk-e Hezar in the Beiza district, near a narrow

13 The typical early Jari "hook motif" is the only Jari painted motif at Nurabad (Weeks et al. 2009, figs. 3,66–67; see also Weeks et al. 2006, fig. 6). Three sherds are erroneously identified as Jari "Ladder" motif (Weeks et al. 2009, 13 fig. 6, TNP 1814.1799.1798). The first two have a vague resemblance to Bashi and the early Jari "strip" motif and are bichrome. TNP 1798 is decorated with an L-shaped band that is filled with small stripped hatches completely unknown from Bashi, Mushki and Jari.

mountain pass (Figs. 1; 5). The site was discovered in 2005, when a surface collection of chipped stone and pottery was made. The site was resurveyed in 2008 (Zeidi et al. 2016). It is a low, small site, ca. 50×50 m, half of which was razed by bulldozer. According to the survey report, both plain coarse ware and painted sherds existed at the site. Only two painted sherds are published in the report, of which one with cross-hatched lines and superimposed triangles is similar to those discovered at Kushk-e Hezar (ibid. 35 fig.7,2).

Arsanjan Cave Sites

Another distinct class of soft ware painted pottery was first found in 1977 by the Japanese expedition in rock shelters A4-1 and A4-2 in the Arsanjan area (Fig. 1), northwest of the Bakhtegan Lake (Tsuneki 2012, 26 fig. 10,12–14). Exact parallels are also reported from Kushk-e Hezar, which Alden and colleagues (2004, 43 fig.9,8–10) called “Swoosh ware” because of the streaky patterns that the paint is applied to the surface (Fig. 17). The ware is handmade with a mixture of straw and mineral temper. It has a grey or black core that abruptly changes to a red, cream or buff surface. In all the discovered examples, the “swoosh” pattern is applied on both the exterior and interior of the sherds. One example from Arsanjan shows carination (Ikeda 1979, 55 fig.24,4). It is intriguing to know that during the Pottery Neolithic period in Fars, only Mushki and “swoosh” decorated ceramics were found in caves.

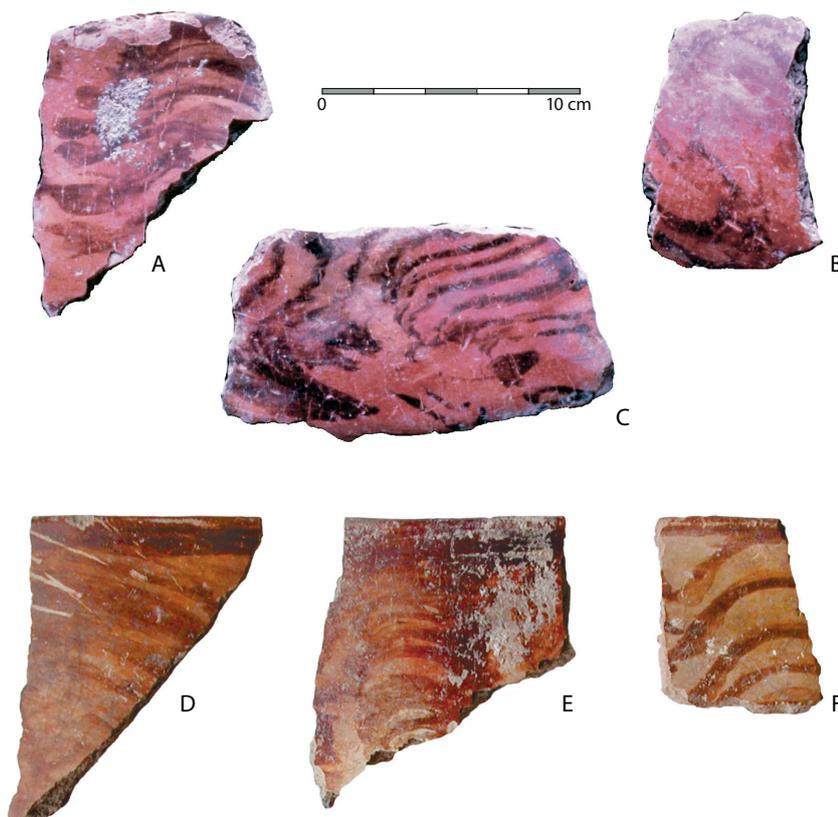


Fig. 17. Examples of “Swoosh ware”:
A–C Arsanjan Caves; D–F Kushk-e Hezar
(A–C after Ikeda 1979, 55 fig.24; D–F
courtesy of J. Alden).

Summary

The Neolithic in the Near East is characterized by the establishment of farming, sedentism, residential architecture, animal husbandry, and later in the period, pottery. Nevertheless, these defining features were already present in late Paleolithic times (see Verhoeven 2011 for a full treatment), making the Neolithic not much of a “revolution” but a process. Yet, neither in the Paleolithic nor in the Neolithic such features are uniformly distributed; instead, we have major variations from site to site and from region to region. Adaptive strategies, environmental conditions, cultural preferences, and human agency are major factors for such diversity in Neolithic assemblages we have in the archaeological record, of which that from Neolithic Fars is a good example.

The PPN stage in Fars begins with an already domesticated set of species of plants and animals, most probably introduced from the central Zagros region, where, unlike Fars, steps towards domestication are well documented. Nevertheless, while the suite of domesticated animals and plants exploited in these early sites vary, they all had a mixed subsistence economy that included hunting and gathering.

Except for Qasr-e Ahmad and possibly Tol-e Sangi, no other aceramic site yielded evidence of architecture. Even when architecture appeared in all PN sites (except for Rahmatabad), it varied. Some had only pisé walls and some mixture of pisé and mud bricks walls. While in all the sites walls, and sometimes floors, were coated with red ochre, the architectural quality varied. At some sites, such as Mushki, the walls are thin and poorly constructed, while in the contemporary site of Hormangan walls are thick, straight, and finely made with sharp corners.

None of the Neolithic sites in Fars yielded spindle whorls. The earliest examples in Fars date to the mid-six millennium BC, but in Khuzestan they appeared earlier during the Early Susiana period, c. 5700 BC. Fifty-four years ago, Egami (1967, 2939) speculated that the lack of spindle whorls at Jari B suggests that the inhabitants used hide and fur for garments. That may well have been the case, but we need to consider the use of plant fibers, such as flax, hemp, and nettle, all used to produce textile fibers (Anderson Strand 2012; Barber 1992). These plants are also all suitable for other purposes, e.g. food. However, except for flax, the other two plants are not yet attested in the archaeological record. Unfortunately, we do not know the circumstances that led to the adoption of wool as a major source for textile, although the development of pastoralism may have been a major factor.

All these early sites shared a similar material culture that included personal ornaments made of stone and Persian Gulf shells, copper, bone tools, flint and obsidian blades and stone pounders. The presence of Persian Gulf shells, obsidian and copper indicates that these early settlements had inter-regional connection and interacted with one another. The pronounced stylistic and technological differences in the ceramics of the two zones may be indicative of social group identity, two major groups who may have spoken different languages as well. It was not until later in the 5th millennium BC during the Gap/Middle Fars period that the entire province of Fars became integrated in terms of material culture.

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