

Southern Turkmenistan in the Neolithic Period: A Short Historiographical Review

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Introduction

A large number of settlements attributed to the early Jeitun village communities of the Neolithic period (7th–5th millennia BCE) are located in southern Turkmenistan, on the northern piedmont plain of the Kopet Dag, from the modern town of Serdar (former Gyzyrbarbat) to the village of Chache (Harris et al. 1996, 424, Fig. 1). Here, in ancient times, lands suitable for agriculture were limited by the hills of Kopet Dag on one side and by the sand ridges of the Karakum desert on the other. During investigations of the Soviet era, 18 sites of the Neolithic Jeitun period were discovered. O. Berdyev (1969, 55–60) divided the sites, by their geographic location, into three groups, named after the Turkmen names of three regions.

1) The western group, “Arkach” (between Serdar and Archman). This area has four known monuments: Naiza Depe, a settlement near the well of Baga Serdar (30 km to the north-west of the modern town of Serdar), Bami (2 km to the west of the modern eponymous village), Gievjik (5 km to the south-east of Kelata) and an anonymous site 73 km along the Ashgabat-Baharden road, not far from Gievjik.

2) The central group, “Ahal” (between Archman and Ak Bugday, formerly Gavers). The largest number of sites was found in the central area: Chopan Depe (7.5 km to the east of Geok Depe), Togolok Depe (4–5 km to the

north of Chopan), Pessejik Depe (1.5 km to the north-west of Togolok), Jeitun (20 km to the north-west of Ashgabat), New Nisa - Taze Nusay in Turkmen (within the city limits of Ashgabat, near the village of Bagir), Kepele (25 km to the north of Ashgabat), Kelata, Yarty Gumbez, and Kantar.

3) The eastern group, “Atek” (between the villages of Ak Bugday and Chache). The eastern group includes Chagyly Depe, Monjukli Depe, Chakmakly Depe, and Gadymy Depe. All of them are situated around the modern villages of Mane and Chache in the Kaka district of Ahal province of Turkmenistan (Masson 1971, 44; Sarianidi 1992, 116; Korobkova 1996, 37). D. Harris and J. Coolidge noted that Naiza Depe, Yarty Gumbez, Kantar, and Kepele had surface scatters that could not be located during their survey in 1998 (Harris and Coolidge 2010b, 61).

In south-eastern Turkmenistan, in the upper Murghab valley, some points along with other stone and flint artifacts were found, which have some similarities to the artifacts of the Jeitun culture, but no indication for the presence of architecture of Jeitun type (Korobkova and Yusupov 1979; Kohl 1984, 211). This scheme was adopted by Ph. Kohl but with some correction. He noted that there are no known sites between the central and eastern zones, and referred to this gap as the Darreh Gaz zone (Kohl 1984, 46). It should be noted that there are, currently,

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far few summarized publications about the Neolithic period in Southern Turkmenistan in the works of both Soviet (Berdyeu 1969; 1976; Masson 1971) and Western scholars (Kohl 1984; Harris and Coolidge 2010a; 2010b; Brunet 1998; 2011).

Research during the Soviet period

Soviet research before World War II

The first archaeological research of the Neolithic sites in Soviet Turkmenistan started before World War II. In 1930 the geologist T. Raspopov made a sounding in Kelata and found painted ceramics which were later attributed to the Neolithic period (Pilipko 2004, 67; Lollekova 1988, 10), but this material has never been fully published. In this early period of Neolithic research in Southern Turkmenistan the major role was played by an archaeologist from Ashgabat; A. A.

Marushchenko. In 1935 he discovered Monjukli Depe (Berdyeu 1972a, 11), and also found some artifacts of the Neolithic period in New Nisa (Berdyeu 1965, 237). In 1937 he made surface surveys at Jeitun; a mound of 0.7 ha barely visible on the edge of the Karakum sands, 20 km north-west of Ashgabat (Fig. 1).¹ Due to its well-studied history in the 20th century, Jeitun became the eponymous key site of that period and in 1939 Marushchenko uncovered Togolok Depe (Masson 1971, 5). In his article “Anau”, published in 1939, Marushchenko also postulated the existence of a Pre-Anau cultural phase in Southern Turkmenistan (Marushchenko 1939, 99–101). In 1946 he found Neolithic materials in the desert area of Kepele, and in the same year in his report he proposed the existence of two Neolithic cultures in this region overall: the Neolithic of the desert area and the Neolithic of the Kopet Dag piedmont (Berdyeu 1969, 9).



Fig. 1. Jeitun. Photo: Aydogdy Kurbanov.

1 Jeitun is not the mound name but the name of a place for collecting water. The mound itself has the local name – Chakmakdash beyikligi, from the Turkmen – “a flint hillock”. After changes in the administrative borders of Ashgabat in the 2000s, the distance from the capital now is around 20 km, not 28 km as noted in older literature.

Soviet research after World War II

In the late 1940s and early 1950s archaeological study of sites was carried out by two organizations – the Southern Turkmenistan Archaeological Complex Expedition (Yuzhno-Turkmenistanskaya arkhеologicheskaya kompleksnaya ekspeditsiya – YuTAKE), established in 1946 under the leadership of M. E. Masson, and the Sector of archaeology of the Academy of Sciences of Turkmenian SSR (TSSR) formed in 1951 (Atagarryev and Berdyev 1967, 129; 1970, 291). YuTAKE consisted of many detachments with their own research areas and periods. The 9th detachment of YuTAKE, led by A. P. Okladnikov, worked between 1947 and 1952 in Western Turkmenistan (on the Krasnovodsk plateau and in the Great Balkhan region), mostly on Paleolithic and Mesolithic rock-shelters. In 1947, A. P. Okladnikov excavated a 10 m x 1 m trench across the shelter of Jebel and identified six cultural layers (Okladnikov 1951, 73–104; 1953; 1956). This division examined other rock-shelters on the south-east Caspian coast: Dam-Dam Cheshme I and II. Dam-Dam Cheshme I was first investigated in 1942 by the geologist V. V. Shumov who made a test pit there. His collected materials were later analyzed by I. P. Boriskovsky (Kurbanov 2013, 53–54). Later, in the 1960s, G. I. Markov, head of the archaeological-ethnographical expedition of the Lomonosov State University of Moscow, excavated Dam-Dam Cheshme II and identified Neolithic period occupation there (Markov 1966).

The 14th detachment of the YuTAKE, led by B. A. Kuftin, excavated Neolithic sites in Southern Turkmenistan. Kuftin began the first excavation in Jeitun in 1952 and attributed the materials from the Neolithic period to a “pre-Anau” period (Kuftin 1954, 27–29; 1956; Masson 1957, 143–44). He made several soundings at the site and revealed traces of five floor levels, as well as flint blades and animal bones. The clay floors represented

evidence of five settlement phases; the dating and settlement organization, however, remained unknown. Larger scale excavations were carried out in Jeitun by V. M. Masson (field director) with I. N. Khlopin and V. I. Sarianidi in 1955–1958. From 1959 to 1964 the second horizon of mudbrick houses at the settlement was uncovered (the upper horizon of the settlement was almost totally destroyed by the process of deflation). The mudbrick houses have a standard square, or rectangular form (sides varying in length from ca. 3.5 m to ca. 6.25 m), with a large oven placed against one of the walls, and a ledge and a niche situated at the opposite one. The clay floors are covered with white plaster and are sometimes painted with ochre. The walls are made from clay blocks tempered with straw (Masson 1960, 15; 1971). The ceramics are both painted and non-painted, and V. M. Masson notes that “*The pottery was hand-made, and the clay was tempered with large pieces of chopped straw. The main forms were cylindro-conical storage vessels, cups and square ‘salad bowls’.* The storage vessels were decorated with reddish-brown paint on a cream background; the decoration was extremely simple, consisting mainly of vertical rows of wavy or ‘bracket-like’ lines” (Masson 1961, 204).

The flint industry was studied by use-wear analysis. In particular, the flint assemblage has a microlithic character and includes a large number of geometric microliths as well as sickles, knives, scrapers, and other tools (Korobkova 1996, 44–52).

In 1987 the latest phase of research began at Jeitun. An area of 10 x 10 m was opened on the eastern part of the mound and revealed remains of the third settlement horizon (Kurbansakhatov and Lollekova 1989; Kurbansakhatov 1992). This work was done as preparation for a joint Turkmen-British-Russian archaeological project started in 1989. These studies continued after the collapse of the Soviet Union, and ended in 1994 (Masson and Harris 1992a; 1992b; Harris and Gosden 2010, 98–107). The main

goal of the new studies was to obtain detailed information about the economy, the environment, and the time-frame of the settlement. For this purpose, several samples were collected, floated, and dated (11 in-site and 3 off-site), giving radiocarbon dates with a range of 6350–5600 BCE (Harris et al. 1996, 436–41; Harris et al. 2010).

A. I. Shevchenko analyzed 2545 animal bones from horizons 1–2, and A. K. Kasparov studied 2130 fragments of bone material from settlement horizons 3–4 obtained during the 1989–1992 excavations (Shevchenko 1960; Kasparov 1992; 2006, 137). Both A. Legge and D. Harris analyzed the management of domestic sheep and goats, and tackled the question of their possible wild progenitors at Jeitun (Legge 1992; Harris 2010a, 78–91). Kasparov notes that: “*the economic structure of Jeitun was much more hunt-oriented than that of the Hadji-Firuz, and the agricultural structure was based on crop cultivation, probably in rather small areas. The agriculture was less developed in Jeitun due to unfavourable soil conditions*” (Kasparov 2006, 158).

In 1951 A. A. Marushchenko found evidence of the Neolithic period at Bami (where the size of the mound is 130 x 30 m). There, in 1960, a team from the Institute of History, Archaeology and Ethnography of the Academy of Sciences of the TSSR, under the direction of Marushchenko, made a sounding (3 x 2 m, and 2.5 m in depth), which provided remains of architecture, ceramics, and lithic artifacts (Berdyev 1963; 1971a, 8).

In 1952, Marushchenko discovered another Neolithic site – Chopan Depe (5 m in height; the diameter from the south-west to the north-east is 180 m, with a total area of 2 ha; Fig. 2). In 1952 and 1959 Marushchenko, as well as in 1953 (Yershov 1956) and S.A. Yershov in 1957–1958, made soundings at Chopan Depe. These excavations yielded, among other contexts, six child graves and allowed for the reconstruction of the stratigraphic sequence of the site. The excavations by O. Berdyev in 1967 revealed houses of the Jeitun type at the level of the first building horizon (Berdyev 1976, 67, Fig. 2). The floors were covered



Fig. 2. Chopan Depe. Photo: Aydogdy Kurbanov.

with straw-tempered clay and the domestic architecture has the overall standard shape of the Jeitun houses. The corpus of stone and flint tools was studied by G. F. Korobkova and O. Lollekova and attributed to the early and middle phases of the Jeitun culture. The ceramics and stratigraphy of the site were studied by O. Berdyev. Based on stratigraphic and ceramic observations, Berdyev dated the site to the early and middle phases of the Jeitun culture (Atagarryev and Berdyev 1967, 131; 1970, 294).

The site of Togolok Depe was discovered by Marushchenko in 1939. The site mound is 50 m in length and 10 m in height and contains, on the slopes, ruins of the early medieval castle. Like Chopan Depe, Togolok Depe is located 2 km from the edge of the Karakum desert. Near the site during prehistoric times, flowed one of the streams of the Sekizyap River traces of which can be observed even today. A sounding (3 x 2 m) made at the site in 1961 revealed four building horizons, but the settlement plan remained unclear (Berdyev 1964). Therefore, Berdyev started excavations on a larger scale (10 x 10 m) which yielded layers of the Partho-Sasanian periods in the upper levels. The Neolithic layers of the second building horizon contained walls of buildings similar to other Jeitun structures with a preserved height of ca. 30–40 cm. The early settlement period at Togolok (I) is represented by two lower building horizons, and two upper building horizons mark the later settlement phase (Togolok II; Berdyev 1969, 27–28).

The samples taken for radiocarbon analysis from Togolok Depe yielded a date of 5370 (± 100) BCE (Berdyev 1972a, 30; Harris and Gosden 1996, 373; Kurbansakhatov 2001, 26). At Monjukli Depe (20 m in diameter and 1.5 m in height), Marushchenko made a stratigraphic sounding in 1959 (5 x 3 m, 7 m in depth) and found fragments of pottery bowls and pots that he thought characteristic of the Jeitun culture (Berdyev 1976,

68, Fig. 5). Large scale excavations in the following year yielded more than 40 rooms and houses. In the upper Aeneolithic phase the settlement was divided into two parts by a long narrow street. Berdyev divided the stratigraphy of Monjukli Depe into three phases. The lowest layers of Monjukli I was attributed to the middle phase of the Jeitun culture. The ceramic material is mainly represented by fragments of pots and cups of the Jeitun culture. Monjukli II represents the equivalent of the late phase of the Jeitun culture. Monjukli III refers to the early Aeneolithic Anau IA period. At 200 m from Monjukli Depe, on a *takyr*, there are many fragments of ceramics and flint products of the Anau IA period, dispersed over a large area. Berdyev suggests that they are the remnants of single houses (Berdyev 1969, 29–30, 36–60; 1971a, 9; 1972a).

Comprehensive evidence of the Late Neolithic period was obtained by excavations at Chagyly Depe (an oval-shaped mound, 0.6–0.7 m in height. The size from the west to the east is 25 m, and from north to south it is 45 m). The site was discovered in 1961 by A. F. Ganyalin. In the following year O. Berdyev made a sounding (5 x 2.5 m, and 6.5 m in depth), and identified 12 building horizons. The earlier settlement period (Chagyly I) was associated with the lower occupation layers (building horizons 12–5), and the upper layers (building horizons 4–1) belong to the later settlement period (Chagyly II). The houses of the upper building horizon are mainly square in plan and have a massive fireplace on one wall, and a ledge on the opposite wall. The floors are plastered with fired clay. The radiocarbon samples from Chagyly Depe yielded a date of 5050 (± 110) BCE (Masson and Sarianidi 1972, 33). O. Lollekova (1978, 184) provided another date of 5086 (± 100) BCE, and K. Kurbansakhatov (2001, 26) produced a date of 7036 (± 100) BCE, but he criticizes this date as being unreliable.



Fig. 3. Pessejik Depe. Photo: Aydogdy Kurbanov.

A. K. Kasparov who analyzed the archaeozoological assemblage from Chagyly Depe notes that cattle bone fragments show some traces of domestication, or the management of wild species through penning. The majority of faunal skeletal material belongs to domestic sheep and goats. There are single bone fragments of wild species such as goitered gazelle, kulan, fox, and probably wild ox (Kasparov 2006, 158).

In 1967 V. N. Pilipko and N. M. Gamayunova discovered the site of Pessejik Depe (Fig. 3), and in the same year O. Berdyev made a stratigraphic sounding (3 x 2 m, 3.5 m in depth) there, where he found Jeitun-type pottery. From 1968 to 1971 he conducted systematic archaeological excavations, and in 1969 he discovered a large house with traces of a preserved polychrome painting on its walls which he dated to the 6th millennium BCE (Berdyev 1976, 67, Fig. 3). The painting was executed in red and black colors, and presented different scenes of hunting, with animals escaping from wild beasts and a hunter depicted in front of them (Berdyev

1972b, 525; 1972c). In 1975, excavations at Pessejik Depe were continued by the Institute of History of Academy of Sciences of TSSR. The architectural evidence documented at the site covers an area of ca. 1.500 m², and it is highly similar to the domestic architecture of Jeitun (Lollekova and Kurbansakhatov 1977; Lollekova 1978, 176, 183; 1988, 20, Fig. 1).

The substantial role that the Turkmen archaeologist Ovliyakuli Berdyev (1935–1973; Fig. 4) played in the research on Neolithic sites of the Kopet Dag piedmont in the 1960s and beginning of the 1970s should be noted. From 1960 to 1973 he carried out surveys in an area stretching from Bami in the west to Chache in the east, and excavated and published the results of field work at the sites of Bami (Berdyev 1963), New Nisa (Berdyev 1965), Chagyly Depe (Berdyev 1966), Togolok Depe (Berdyev 1968a), Chakmakly Depe (Berdyev 1968b), Pessejik Depe (Berdyev 1968c), Chopan Depe (Berdyev 1971b; 1976), and Monjukli Depe (Berdyev 1972a). Unfortunately the death of Berdyev in 1973, in a car accident, almost



Fig. 4. Ovliyakuli Berdyev (1935–1973). Photo: Aydogdy Kurbanov.

halted active research into the Neolithic of Southern Turkmenistan until the late 1980s.

The last sites of the Neolithic period which were found in the Soviet era were Gadymi Depe (7 km to the south of Chache), and Gievjik (5 km to south-east of Kelata). Gadymi Depe was discovered by a geologist, V. T. Volovik, in 1971. One year later, in 1972, the 14th detachment of the YuTAKE made sounding, and in 1977 they conducted excavations on a larger scale which yielded the remains of two houses. The collected material evidence included 176 pottery fragments as well as 1664 stone and flint objects dated to middle and late Jeitun phases (Korobkova and Volovik 1972; Lollekova 1982, 3–9). Gievjik was first explored by Pilipko in 1970. The stratigraphy of a sounding dug in 1973 was divided into two cultural complexes. The upper layers were dated to the Aeneolithic Namazga II period, and the lower layers contained flint material of Jeitun type (Pilipko 2004). According to the lithic industry, comprised of 122 flint artifacts, Gievjik was dated to the middle phase of the Jeitun culture (Korobkova 1975;

1987, 72; Lollekova 1988, 10). It should be noted that these sites as well as New Nisa are located in a piedmont area.

After the independence of Turkmenistan

As noted above, the Turkmen-British-Russian archaeological team conducted excavations in Jeitun which began in 1989 and ended after the collapse of the Soviet Union in 1994. This Jeitun project was the result of an agreement signed between the Institute of Archaeology of University College London, the Institute of the History of Material Culture in Leningrad (St. Petersburg), and the Sh. Batyrov Institute of History of the Academy of Sciences of Turkmenistan. The main excavations took place in the center, and at the northwestern edge of the mound. In 1989–1990, a 10 x 11 m area was excavated in the center of the mound. Also, between 1990 and 1993, geoarchaeological investigations were conducted. In 1996 a member of British archaeology team carried out reconnaissance survey and trial excavations trying to find Paleolithic, Mesolithic, or early Neolithic sites in western and south-western Turkmenistan and to trace the origins of the Jeitun culture and the beginnings of agriculture in Turkmenistan. Unfortunately, this search for pre-Neolithic and Neolithic sites was unsuccessful. The team also made small-scale excavations, in 1997, at the rock-shelters of Dam-Dam Cheshme I, II, III and IV (Harris et al. 1996, 441; Harris and Gosden 2010, 107–17). In 2001 a French-Turkmen archaeological expedition commenced its excavations at Ulug Depe (in the Kaka district of Ahal province). Some materials, among the large number of sherds and lithic tools found at this site, may relate to the late Jeitun period.²

A joint German-Turkmen archaeological expedition began its work at Monjukli Depe

² Dr. Julio Bendezu-Sarmiento personal communication.

in 2010, which was supposed to comprise both Jeitun (Neolithic) and Anau IA (early Aeneolithic) occupational sequences. This project was a multi-year project planned to address broad issues such as technological change in the region during the Neolithic and Aeneolithic periods, systematic collection of floral and faunal data, the understanding of potential socio-economical distinctions among the inhabitants of Monjukli Depe, and obtaining a reliable chronology. The excavation work ended in 2014 (Pollock et al. 2011, 172–73; Pollock and Bernbeck 2019). During the 2010 season, three trenches (units A, B and C) were opened.

The upper Aeneolithic layers yielded pottery with different painted motifs and older radiocarbon dates than those known from other sites of the early Aeneolithic Anau IA period. This Aeneolithic phase at Monjukli Depe was attributed to a new period between the Neolithic Jeitun and Anau IA horizons, which was named the “Meana Horizon” (Bernbeck and Pollock 2016, 69–71). The radiocarbon dates for the lower Neolithic Monjukli Depe layers at first suggested a date of c. 6375–5900 cal. BCE (Pollock et al. 2011, 174, 183–84), but this was later revised to 6200–5600 cal. BCE (Pollock and Bernbeck 2019, Tab. 2.2). I. Heit (2019a; 2019b) analyzed the valid (87) radiocarbon dates (except for the lowest Monjukli levels X–IX) from Monjukli Depe and revised the chronological scheme for the Neolithic and early Aeneolithic.

One the most important results of the Monjukli excavations were that the radiocarbon dates indicate a hiatus of about 800 years between Neolithic Monjukli (6200–5600 cal. BCE) and Aeneolithic Monjukli (4800–4350 cal. BCE) (Bernbeck and Pollock 2016, 69–71; Pollock and Bernbeck 2019, Tab. 2.2; Heit 2019b). This is in contrast to the suggestions of continuous occupation at the site (Berdyev 1972a, 32; Kohl 1984, 65; Coolidge 2005, 20).

Chronology of sites

According to Berdyev (1969, 36–60), Jeitun culture sites can be attributed to three chronological periods – early, middle, and late Jeitun – on the basis of changes in pottery forms and motifs as well as the composition of the lithic industry and architecture (Masson 1971, Fig. 13). Following more recently obtained radiocarbon dates we may date the Jeitun culture from ca. 6300 to ca. 4800 cal. BCE.

1) Early period: The early Jeitun period was subdivided by Berdyev into two phases; 1A and 1B. Phase 1 (1A) includes the lower horizons of (the site of) Jeitun, horizons 1–3 of Chopan Depe, and the lowest horizon of Togolok Depe. There are three types of vessel: cylindrical pots, bowls, and rectangular vessels. The phase (1B) includes an upper horizon of Jeitun, horizons 4–5 of Chopan Depe, and the two lower horizons of Togolok Depe. New vessel forms appear in this phase. The ornaments are decorated with frequent vertical lines intercepted by horizontal bands (Berdyev 1969, 36–60).

Monjukli Depe belongs to the early period, which was clarified after obtaining new radiocarbon dates from this site (Pollock et al. 2011, 174, 183–84; Heit 2019a; 2019b). K. Kurbansakhatov also assigned Gievjik and Pessejik Depe to this period (Kurbansakhatov 2001, 30). G. E. Markov (1966, 122) suggests, on the basis of the similarity of the stone tools, that horizon IV of the cave of Dam-Dam Cheshme II dates to the early phase of the Jeitun culture. Mesolithic-Neolithic cave sites along the east coast of the Caspian Sea were inhabited from the 10th to 5th millennia BCE.

2) Middle period: According to Berdyev (1969, 36–60), the following sites belong to this period – Togolok Depe, Chopan Depe, New Nisa, Kantar, Kelata, Naiza Depe, Kepele, Yarty-Gumbez, Bami, Chagylly Depe.

3) Late period: D. Harris with J. Coolidge (2010b, 60) date Chakmakly Depe, Pessejik Depe, Chagyly Depe, Bami Gadymi Depe, and Monjukli Depe to the late period.

F. Hiebert (2002) followed Berdyev's geographical division Arkach (western), Ahal (central), and Etek (eastern, which included Kohl's Darreh Gaz zone), and introduced the terms Kopet Dag 1, 2, and 3 for three successive periods that are equivalent to Berdyev's Early, Middle, and Late Jeitun on the basis of all the radiocarbon dates available for the three periods: Kopet Dag (KD) 1 6100–5700 BCE, KD 2 5700–5100 BCE, and KD 3 5100–4500 BCE.

Ph. Kohl (1992, 180) notes that it is still uncertain whether Early, Middle, and Late Jeitun indicate a chronological difference or regional variations in the same period. R. Bernbeck and S. Pollock (2016, 69–71), taking into account the radiocarbon dating from Chagyly Depe (6353–5845 cal. BCE) and Monjukli Depe (6200–5600 cal. BCE), suggest “*that the ‘Middle’ and ‘Late Jeitun’ components in the Meana-Çaaça region are nearly contemporaneous with ‘Early Jeitun’ at Jeitun itself*”.

Conclusion

Jeitun is the earliest known agricultural settlement in Central Asia. According to V. M. Masson, Jeitun was a small sedentary settlement occupied around the 6th millennium BCE by a population of 150–180 people who lived as nuclear families in one-room mudbrick houses, made stone tools, made pottery, and subsisted by cultivating cereals, herding goats and sheep, and hunting gazelles and other wild mammals (Masson 1971; Masson and Sarianidi 1972, 36–44). The excavation project at Jeitun, by the British team under the direction of D. Harris, investigated the early settlement history of the site. On the basis of eleven radiocarbon dates obtained from several settlement levels,

it was proposed that “*Jeitun was probably only occupied for three or four centuries at most and that at least parts of the site were episodically abandoned and re-occupied. Our conclusion that Jeitun was a short lived settlement, which may not have been inhabited continuously throughout its history, suggests a less stable long-term occupation than Masson envisaged*” (Harris 2010b, 211).

Regarding the origin of the Jeitun culture, V. M. Masson supposed that its origin should be found in western Turkmenistan, especially the Great Balkhan mountain area, and noted some cultural connections between the Jeitun sites in southern Turkmenistan and Neolithic settlements in Iraq (Jarmo) and Iran (Tepe Guran, Sarab, Sialk I, and Yarim Tepe; Masson and Sarianidi 1972, 45–46). Also, Korobkova (1969) stressed similarities, such as with the microlithic industry, she observed between the stone tool assemblages from Jeitun and the Great Balkhan rock-shelters, and even proposed that the Kopet Dag piedmont was originally settled in the Mesolithic by migrants from the Caspian area who became the founders of the Jeitun Culture. Korobkova, who studied the chipped stone and bone materials of all Jeitun culture sites, notes that the “*chipped industry is characterized by well-developed blade technology and microliths. Raw material included the high quality and highly transparent flint of honey-like and brown color (91–97%), a fine-grained stone (1–1.5%), and bone (1.8–8.8%). Flint was imported from the central part of the Karakum, or from the Krasnovodsk Plateau*” (Korobkova 1996, 53). Contrary to V. M. Masson, O. Berdyev assumed that the origin of this culture was in the South Caspian region and the southern part of the Kopet Dag. According to Berdyev, the central region of Ahal was the first Kopet Dag area settled in the early Jeitun phase. From this area the Jeitun communities simultaneously spread to the western and the eastern Kopet Dag in the following middle Jeitun phase (Berdyev 1969, 21–22).

D. Harris and C. Gosden supported the theory of O. Berdyev and noted that, “*the east Caspian Mesolithic does not appear to be a credible progenitor of the neolithic Jeitun Culture as a whole – most conclusively because there is no evidence of cereal cultivation at any of the sites*” (Harris and Gosden 1996, 383). D. Harris compared five radiocarbon dates from Jebel, obtained in the 1950s by A. Okladnikov, with the other four dates obtained in 1976 by P. Dolukhanov. The results revealed quite close correspondence between Okladnikov’s sample from his “early Neolithic” layer 4 dated to 5500–4400 BCE and Dolukhanov’s lowest sample, from the early Neolithic, dated to 5300–4890 BCE. These two dates indicate that the transition from the Mesolithic to Neolithic occupation at Jebel occurred at least 500 years after the foundation of Jeitun (Harris 2010b, 217–18). At the same time D. Harris supposes that “*there is some slight evidence of contact between the rockshelters and Jeitun. It consists of a few sand-tempered potsherds of Keltiminar type that were found at Jeitun, and some fragments of chaff-tempered pottery excavated at Jebel by Okladnikov and also collected there on the surface by the British team in 1997*” (Harris 2010b, 218).

In north-eastern Iran there are three sites with material culture similar to the Jeitun culture: Tureng Tappeh, Yarim Tappeh, and Sang-e Chakhmaq. Sang-e Chakhmaq is situated about 1 km north of the village of Bastam (Semnan Province), on the south-eastern flank of the Elburs Mountains and has two mounds: one western and one eastern. The western mound of Sang-e Chakhmaq is very different from the eastern one: excavations have shown that there are no ceramics on the western mound. The 40 sets of charcoal samples, collected by the Japanese team (under the direction of S. Masuda) from the Sang-e Chakhmaq excavations in the 1970s, were radiocarbon

dated at the Center for Chronological Research, Nagoya University. Calibrated ages for the western mound samples ranged from 7200–6600 cal. BCE. Several hundred years after the termination of occupation at the western mound, activities at the eastern mound started at around 6300 cal. BCE (Nakamura 2014). As we see, this suggests a hiatus of around 300 years between the two settlements. Nakamura (2014) notes that habitation on the eastern mound was stable from 6200 to 5700 cal. BCE, but it may have continued until around 5200 cal. BCE.

The radiocarbon dates obtained for Jeitun essentially indicate its settlement from ca. 6300 to 5700 BCE. However, only one of these dates (OxA-2914) gave two calibrations just above 6300 BCE and the probability level of both of them is very low. The radiocarbon dates obtained for Jeitun actually indicate its occupation from ca. 6000 to 5800 BCE (Harris and Gosden 1996, 381–82). Apparently, therefore, the aceramic western mound of Sang-e Chakhmaq was settled 900 years earlier than Jeitun. Thus, the Sang-e Chakhmaq settlement is likely to be attributed as the earliest of the known and dated Neolithic settlements in this region. Probably the western mound of Sang-e Chakhmaq, it can be assumed, represents a transitional stage between the Mesolithic of the southern part of the Caspian coast (the caves of Ghar-i Kamarband [Belt], Khotu, and Ali Tappeh), and the Neolithic of the Jeitun sites (Harris and Gosden 1996, 382; Kurbansakhatov 2001, 31).

Thus, only detailed investigation of Jeitun culture sites and East Caspian rock-shelters using flotation and other modern facilities for retrieving new material can potentially help to resolve the important questions of the social development and regional chronological sequence of the 7th–5th millennia BCE.

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