Published: October 25, 2010
Last Updated: October 27, 2016

SANG-E CHAKHMAQ

SANG-E **CHAKHMAQ** (also Tepe Sang-i Chaxmaq; Pers. *sang-e čaḵmāq* "flint"), a Neolithic site near Šāhrud in northeastern Iran, important for having an unbroken archeological sequence from the 7th to the early 5th millennium BCE. The site was excavated by the Japanese scholar Seiichi Masuda (b. 1922) in the 1970s, but the results were never completely published (see Masuda, 1973; idem, 1974a; idem, 1974b; idem, 1976; idem, 1984). The Japanese continue to work on the material brought back to the University of Tsukuba by Masuda; Kourosh Roustaei of the Iranian Center for Archeological Research has recently (2009) undertaken a short stratigraphic excavation at Chakhmaq in order to obtain radiocarbon samples and ceramic sherds from each level. Until this research is published, we must rely upon the few articles published by Masuda as well as a recent translation of Masuda's 1977 preliminary report to provide a new (if still limited) understanding of this essential site.

The site of Sang-e Chakhmaq consists of two low mounds: the Western Tepe, ca. 90 x 90 m, and the Eastern Tepe, 150 x 400 m (FIGURE 1). At the earlier Western Tepe, Masuda identified five levels of occupation, the uppermost (Level 1) having no discernable architecture due to erosion. At the later Eastern Tepe, he identified six occupation levels, with the uppermost (Levels 1 and 2) strata having poorly-preserved architectural remains. In general, the levels at the site can be divided into four phases (TABLE 1): Aceramic Neolithic, Early Ceramic Neolithic, Late Ceramic Neolithic, and Transitional Chalcolithic.

The Aceramic Neolithic phase spans Levels 2-5 of the Western Tepe. This

period is notable for large mud-brick houses with plastered and red-painted floors and well-built fireplaces, some of which appear to have had ritual significance. Amongst these houses there is abundant evidence for the *in situ* production of lithic tools using both local flint/chert and imported obsidian (Goto), as well as tools made of deer antler and bones (Masuda, 1974a, p. 25; idem, 1977, fig. 19). Zoomorphic and anthropomorphic figurines are common (Furusato, 1977). Most of the burials found in the Western Tepe were laid on their side in a fetal position, often underneath a stone (Ikeda and Tagaya). Although studies of plant and animal remains from the site have not been published, the abundance of stone querns and grindstones in these levels points to a Neolithic subsistence (Iwasaki). A single radiocarbon date from Level 2 (Masuda, 1974a, p. 25) or Level 3 (Masuda, 1976, p. 65) suggests a date for this phase in the 7th millennium BCE.

In the heavily-eroded uppermost levels of the Western Tepe, a handful of sherds were found signaling the beginning of the Early Ceramic Neolithic phase. These early sherds are described as burnt-umber colored with polished surfaces (Kamuro), and are undoubtedly related to the Caspian Neolithic Soft Ware from the Hotu and Kamarband ("Belt") Caves as defined by Dyson (see CERAMICS i). Three radiocarbon dates from the Neolithic Soft Ware levels at Belt Cave provide a pooled mean of 7250 +/- 260, which gives us a 2-sigma range of 6610-5640 cal. B.C. (i.e., we can be 95 percent certain that the Soft Ware levels fall within this range, in calibrated (cal.) years B.C.). Due to the disturbed nature of the uppermost contexts of the Western Tepe, not much is known about this phase at Sang-e Chakhmaq.

Masuda (1976, p. 65; idem, 1984, p. 211) notes many similarities between the uppermost levels of the Western Tepe and the bottom of the Eastern Tepe, including the presence of Neolithic Soft Ware ceramics and shared types of bone tools. However, he emphasizes that Level 6 of the Eastern Tepe is definitely later than Level 1 of the Western Tepe, based on the more varied types of ceramics present in Level 6 (see Kamuro). In any case, there does not seem to be a considerable gap in time between the end of occupation on the Western Tepe and the founding of the Eastern Tepe, nor can we demonstrate a dramatic change in the local population (such as a mass immigration). Indeed, the flint tools from the Western Tepe and the Eastern Tepe are almost identical despite significant changes in all other aspects of daily life. The only difference between the Eastern and Western stone tool repertoires is the dearth of obsidian in the Eastern Tepe levels and the lack of evidence for *in situ* lithic

production in these levels (Goto).

The Late Ceramic Neolithic phase at Sang-e Chakhmaq (Levels 6-3 on the Eastern Tepe) is defined by the presence of numerous ceramics similar to those found at Neolithic sites of the Djeitun (Jeitun) Culture of Southern Turkmenistan (Masuda, 1976, p. 63; Harris). The earliest levels of the Eastern Tepe also contained Neolithic Soft Wares, "polychrome" wares of uncertain type, and Black Polished Ware, the latter type known from Late Neolithic levels at Tepe Sialk (Period I), Cheshmeh Ali, and Hotu Cave (see CERAMICS i). The later levels of this phase (Levels 3 and 4) also contained a local ceramic "threshing tray" with thumb-impressions on the interior surface (Kamuro). Two radiocarbon dates from Levels 5-6 on the Eastern Tepe provide a 2-sigma range of 6400-5900 cal. B.C. New radiocarbon dates from the site of Djeitun in Turkmenistan provide a range of 6300-5700 cal. B.C. for contemporaneous levels (Harris and Gosden, p. 382), while radiocarbon dates for the Sialk I period in north-central Iran provide a range of 6000-5200 cal. B.C. (Fazeli et al., p. 9).

In addition to the pottery, the Early Ceramic Neolithic phase levels on the Eastern Tepe show a number of similarities to Djeitun-period sites in Southern Turkmenistan. For example, the use of long, cylindrical mud bricks in these levels is paralleled at Djeitun Culture sites (Kohl, p. 180), although the architecture of the Eastern Tepe is more haphazard than the well-planned houses of Djeitun itself (Masuda, 1974a, p. 26). Exact parallels at Djeitun-period sites are also found in certain types of small finds, most notably the "cosmetic vials," flat circular and square spindle whorls made of stone, hook-shaped bone sickles, and certain zoomorphic figurines (FIGURE 2).

On the other hand, many artifacts from the Eastern Tepe have no comparison with Central Asian sites, but instead display strong connections with the Sialk I sites of north-central Iran. These include the carved alabaster vessels, biconical spindle whorls made of terracotta, and most especially the straight-handled bone sickles carved with zoomorphic imagery (FIGURE 3). Missing from this assemblage are any ceramics in the Sialk I style.

In addition to possible imports, certain small finds (e.g., hook-shaped sickles with zoomorphic carving) suggest local hybridization of both Djeitun and Sialk styles. Furthermore, numerous ceramic forms (e.g., pedestals and sharply-carinated bowls from Level 5) as well as the ceramic house model (from Level 3) have no known parallel in either Southern Turkmenistan or north-central

Iran (FIGURE 4).

The final phase at Sang-e Chakhmaq occurs only in the top two levels of the Eastern Tepe. These levels demonstrate a considerable shift in lifestyle. First, the inhabitants switched to well-made rectangular mud bricks, often with finger impressions, in construction (Masuda, 1976, p. 63). Houses were well planned and organized around a central hearth room, and there were numerous ceramic kilns situated in and around houses. Burial tradition changed from inhumations laid flexed on their side (similar to the Western Tepe) to bodies laid extended on their back (Ikeda and Tagaya). Antler and deer bone tools are essentially non-existent in this phase, while cattle bone tools are ubiquitous, suggesting a dramatic shift in subsistence (Masuda, 1976, p. 64). Intriguingly, the most striking examples of wild animal figurines, notably the alabaster sculpture of a wild ram from Level 2 (see Figure 4.D), are also from these levels.

While both Neolithic Soft Ware and Djeitun-style ceramics are found in Levels 1-2 of the Eastern Tepe, the overwhelming majority of the ceramics have strong parallels with Black-on-Red Sialk II/“Cheshmeh Ali”-style pottery of north-central Iran (Goto; Masuda, 1976, p. 64; CERAMICS i). Recent petrographic analysis of sherds from the Eastern Tepe has noted locally-produced examples of both Djeitun and Sialk II-style pottery (Thornton). A few copper objects were found in these same levels of the Eastern Tepe (Masuda, 1976, p. 64) that are comparable to similar artifacts from Period I.5–II.1 levels at Tepe Sialk (Ghirshman, pl. LII). The early Sialk II period (called the “Early Transitional Chalcolithic” by Fazeli et al.) has been radiocarbon dated to the end of the 6th and beginning of the 5th millennium BCE.

Although other sites in northeastern Iran have been discovered that contain one or two of the four phases described above (see Rezvani; Azarnoush and Helwing), Sang-e Chakhmaq remains the only site with a complete sequence from Aceramic Neolithic to Transitional Chalcolithic. Furthermore, the broad horizontal excavations carried out by the Japanese at this site (300 m^2 in the Western Tepe alone; Masuda, 1974b, p. 223) are unparalleled. It is critical that these excavations be published. The site of Sang-e Chakhmaq provides the key to understanding the spread and adoption of Neolithic lifeways into eastern Persia and southern Central Asia.

BIBLIOGRAPHY

M. Azarnoush and B. Helwing, “Recent archaeological research in Iran: Prehistory to Iron Age,” *Archaeologische Mitteilung aus Iran und Turan* 37, 2005, pp. 189-246.

Fazeli et al., "The Qazvin Plain revisited: a reappraisal of the chronology of northwestern Central Plateau, Iran, in the 6th to the 4th millennium BC. *Ancient Near Eastern Studies* (*ANES*) 42, 2005, pp. 3-82.

S. Furusato, “Clay, stone, and other figurines,” in Masuda, ed., 1977, pp. 20-21.

Idem, “Tepe Sang-i Chaxmaq,” in *Dawn of Persian Civilization: Catalogue of a temporary exhibition at the Matsudo Museum*, Tokyo, 2005, pp. 59-63.

R. Ghirshman, *Fouilles de Sialk* I, Paris, 1938.

K. Goto, “Chipped stone implements,” in Masuda, ed., 1977, pp. 9-11.

D. R. Harris, *Origins of Agriculture in Western Central Asia: An Environmental-Archaeological Study*, Philadelphia, 2010.

D. R. Harris and C. Gosden, “The beginnings of agriculture in western Central Asia,” in D. R. Harris, ed., *The Origins and Spread of Agriculture and Pastoralism in Eurasia*, London, 1996.

J. Ikeda and A. Tagaya, “Human Remains,” in Masuda, ed., 1977, pp. 21-25.

T. Iwasaki, “Polished stone implements,” in Masuda, ed., 1977, pp. 11-15.

H. Kamuro, “Ceramics,” in Masuda, ed., 1977, pp. 15-20.

P. L. Kohl, “Central Asia,” *Chronologies in Old World Archaeology*, ed. R. W. Ehrich, Chicago, 1992, pp. 179-95.

S. Masuda, “Excavations at Tappe Sang-e Cagmaq,” *Proceedings of the 1st Annual Symposium of Archaeological Research in Iran*, Tehran, 1973, pp. 1-2.

Idem “Excavations at Tappeh Sang-e Caxmaq,” *Proceedings of the IInd Annual Symposium on Archaeological Research in Iran*, Tehran, 1974a, pp. 23-33.

Idem, “Tepe Sang-e Caxamaq,” *Iran* 12, 1974b, pp. 222-23.

Idem, “Report of the archaeological investigations at Shahrud, 1975,” *Proceedings of the IVth Annual Symposium on Archaeological Research in Iran*, Tehran, 1976, pp. 63-70.

Idem, ed., *Tappeh Sang-i Chaxmaq*, Tokyo and Hiroshima, 1977.

Idem, “The excavation at Tappeh Sangh-e Caxmaq,” *Archiv für Orientforschung* 31, 1984, pp. 209-12.

H. Rezvani, “Prehistoric settlement patterns and cultures in Semnan Province, Central Plateau, Iran,” in A. Alizadeh, Y. Majidzadeh and S. M. Shahmirzadi, eds., *The Iranian World: Essays on Iranian Art and Archaeology Presented to Ezat O. Negahban*, Tehran, 1999, pp. 220-21.

C. Thornton, "Sang-i Chakhmaq: A new look," in R. Mathews and H. Fazeli, eds., *The Neolithicisation of Iran*, London, forthcoming.