An Early Neolithic Flint-Knapping Spot from Ali Kosh, Southwestern Iran

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Introduction

The Neolithic mound of Ali Kosh is located in the Deh Luran Plain, southwestern Iran (*c.* 150 m a.s.l.; Fig. 1). It rises *c.* 4 m above the surrounding fields, containing *c.* 7 m of archaeological deposits in thickness. Ali Kosh was first investigated by a French mission in 1903 (Gautier and Lampre 1905: 81-83). However, thanks to later excavations directed by F. Hole in the early 1960s (Hole *et al.* 1969), it has become one of the most informative sites yielding evidence of early agricultural societies in the eastern wing of the Fertile Crescent. Although Hole and his colleagues have published their excavations at a high standard, the site's chronology deserves a revision. More recently acquired radiocarbon dates have also increased ambiguities in this regard (*cf.* Zeder and Hesse 2000). Therefore, a stratigraphic trench was excavated under direction of H. Darabi in 2017 (Darabi *et al.* 2017). In order to gain new samples from save contexts, a small area (2.5 x 2.5 m) was first opened on the southern edge of the trench remaining from the former excavations (not filled back). Then, this new area was reduced to 2 x 2 m down to virgin soil (Fig. 2). This could provide us with a sequence of layers as close to Hole's stratigraphy as possible. Generally speaking, the new stratigraphy indicates the remains of 18 occupational phases: Of interest was a "knapping spot" of a thickness between 3-8 cm, resting above virgin soil. This paper discusses a preliminary analysis of the chipped flints recovered from this lowermost layer of the site.

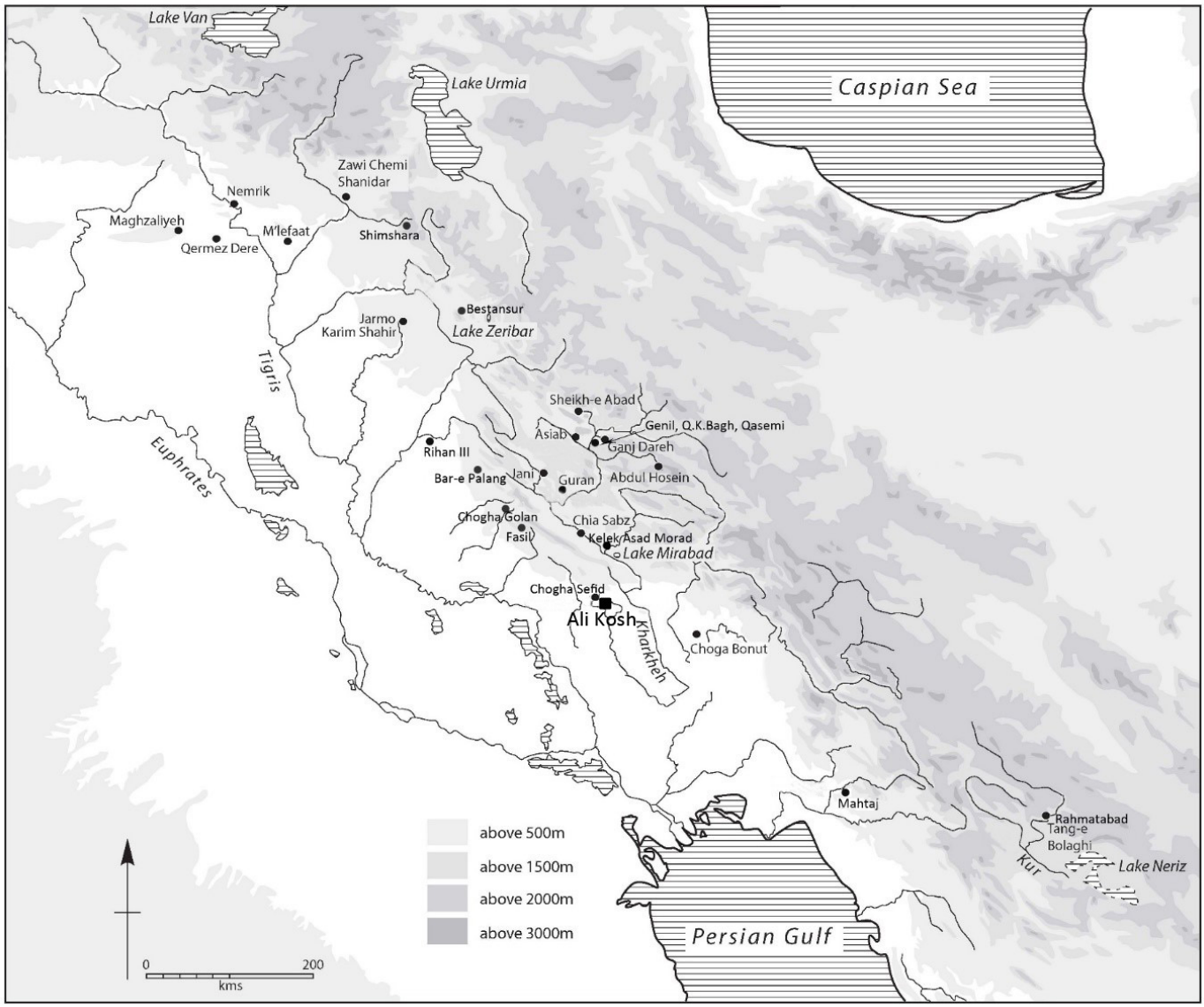

Fig. 1 Map showing the location of Ali Kosh and other prominent Neolithic sites. (Modified by H. Darabi from Matthews *et al*. 2013: 2, Fig.1.1)

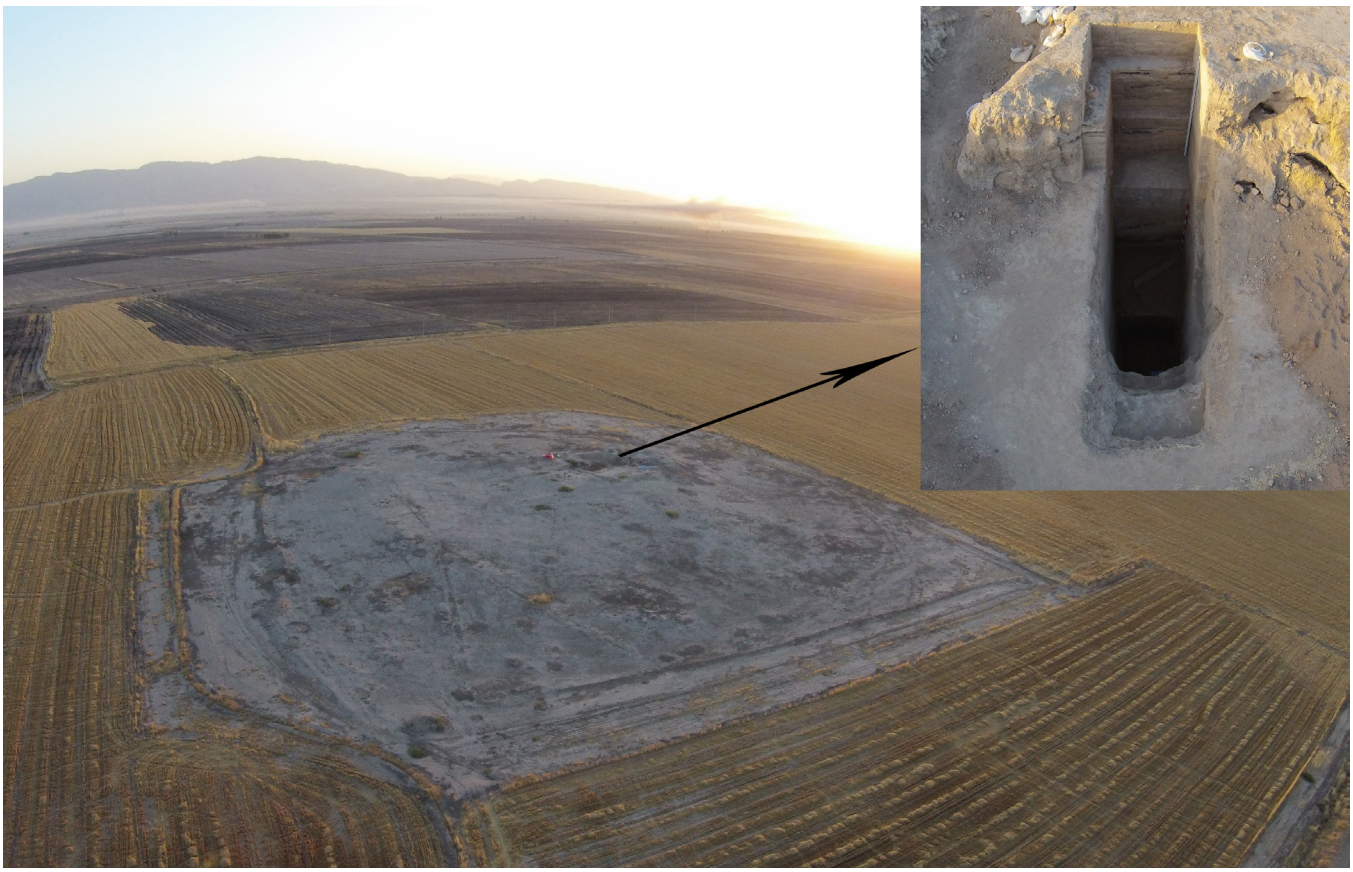

Fig. 2 Aerial view of Ali Kosh and the new stratigraphic trench in 2017. (Photo: L. Ahmadzadeh)

Fig. 3 Concentration of chipped flints revealed in the excavation (A) and the collected assemblage (B). (Photos: H. Darabi)

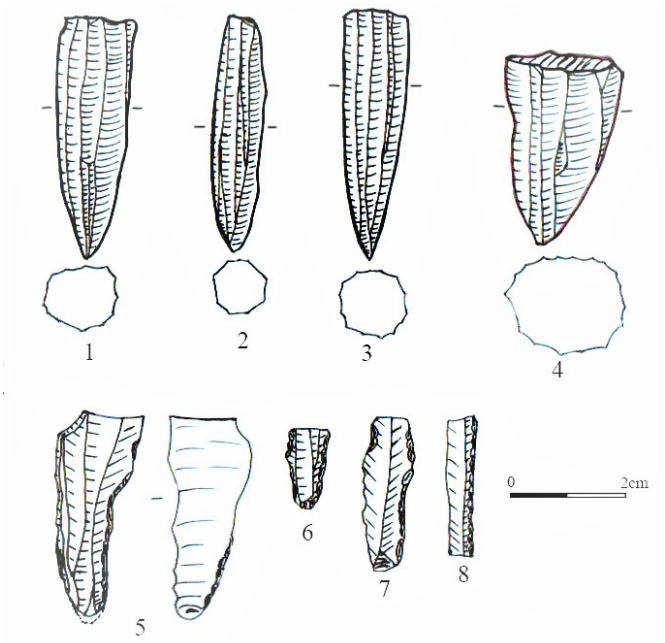

Fig. 4 Samples of the cores and tools (1-4: bullet-shaped cores; 5-6: drill; 7-8: backed bladelet). (Drawing: H. Darabi)

The Knapping Spot

Former excavations in the early 1960s offered a notable amount of chipped stone that was previously well published (*cf*. Hole *et al*. 1969: 74-105) whereas our new stratigraphy has yielded a much smaller assemblage, *c*. 5,000 pieces in total. In Neolithic sites, stone tools are usually found in residential contexts where they were used and finally wasted. This explains the importance of any *in situ* knapping floors, an interesting issue seen in the lowermost layer of Ali Kosh. Due to the suitable location of the new stratigraphic trench we could recover a new part of an *in situ* flint concentration (Fig. 3) that had also been reported previously from the site (*cf*. Hole *et al*.1969: 34). Although Hole and his colleagues have correctly interpreted this dump as a spot where a knapper had worked (*ibid*: 74) they did not give further information. As mentioned above, a part of the knapping spot was reached in 2017. As the result, a total of 2,036 pieces of flint was found, including tools, cores, debitages and debris (Figs. 4-5). Of these, a small amount (10%) are tools. Most of the tools were made on bladelets (90%). Such biased blank production is also shown by the scars of the bullet-shaped cores, varying between 1.5-8 mm in width. Utilized bladelets are statistically much higher than other types (Fig. 6). Apart from a few reddish-brown samples, a medium-grained grey flint was thoroughly used indicating a homogenous raw material. No obsidian pieces were found.[1] Flint nodules and evidently cortical pebbles were used for knapping. Based on our analysis around 50% of the assemblage is more or less cortical. In this regard, highly cortical flakes (85%) and blades (59%) were rarely used as tool, while cortical bladelets (12%) are much less in quantity.

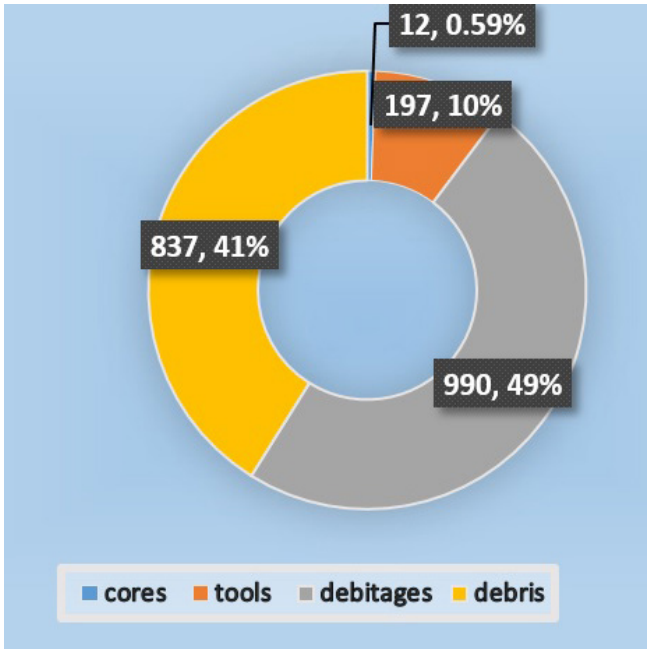

Fig. 5 Preliminary classification of the assemblage by piece numbers and percentages. (Graph: H. Darabi)

Concluding Remarks

As seen from our analysis, bladelet blanks were preferred for tools; many flakes are the result of core trimming. In general, as shown by previous investigations (*e.g.* see Kozłowski 1999), the assemblage relates techno-typologically to M'lefatian industries. It seems that the initial occupants of Ali Kosh might have not yet been familiar with obsidian and even fine-grained flint (mid-8th millennium BCE). Instead, they exploited local cortical nodules to produce their desired tools on-site. In terms of spatial analysis, this flint-knapping spot perhaps shows a specific location devoted to tool production. The first settlers of the Deh Luran Plain, however, founded their socio-economic and technological structures on earlier foundations seen in the highland central Zagros.

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Endnote

[1] Obsidian was previously reported from Buz Mordeh phase (see Hole *et al*. 1969; Renfrew 1969). However, no sample was recovered from the lowermost deposits, *c*. 80 cm in thickness, in 2017. Therefore, it is unclear whether obsidian was introduced into the site since the earliest time of occupation or became available through time.

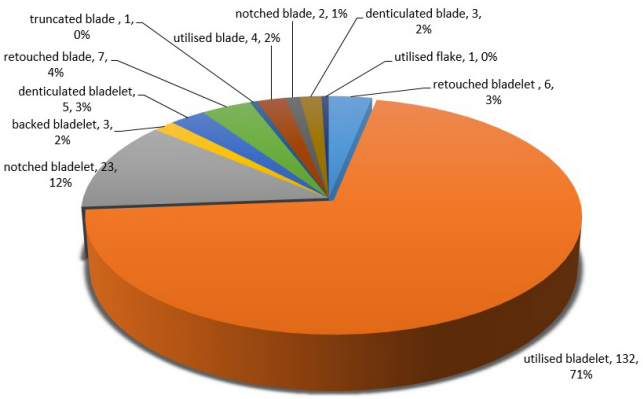

Fig. 6 Proportion of various tool types. (Graph: H. Darabi)

References

Darabi H., Bahramiyan S., Mostafapour S., Khademi Bami M. and Yari A.
2017 Re-excavation at Tapeh Ali Kosh, Deh Luran Plain, Iran. *Neo-lithics* 2/17: 15-18.

Gautier J.E. and Lampre G.
1905 Fouilles de Moussian. *Mémoires de la Délégation en Perse* 8: 59-148.

Hole F., Flannery K.V. and Neely J.A.
1969 *Prehistory and human ecology on the Deh Luran Plain*. Memoirs of the Museum of Anthropology 1. Ann Arbor: The University of Michigan Press.

Kozłowski S.K.
1999 *The eastern wing of the Fertile Crescent: Late prehistory of Greater Mesopotamian lithic industries*. BAR International Series 760. Oxford: British Archaeological Reports.

Matthews R., Matthews W. and Mohammadifar Y.
2013 *The earliest Neolithic of Iran: 2008 Excavations at Sheikh-E Abad and Jani*. Oxford: Oxbow Books.

Renfrew C.L.
1969 The sources and supply of the Deh Luran obsidian. In: F. Hole, K.V. Flannery and J.A. Neely (eds.), *Prehistory and human ecology on the Deh Luran Plain*. Memoirs of the Museum of Anthropology 1: 429-34. Ann Arbor: The University of Michigan Press.

Zeder M.A. and Hesse B.
2000 The initial domestication of goats (*Capra hircus*) in the Zagros Mountains 10,000 years ago. *Science* 287: 2254-2257.