Palaeolithic occupation of the Mehran Plain in Southwestern Iran

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Introduction

Palaeolithic archaeology in Iran has been divided into three main stages; in the first stage, from the early 20th century to the late 1970s, all researches were conducted by western archaeologists building a foundation on which later researches rested; the second stage sees a 20-year gap in Palaeolithic studies, and the third stage began with the reopening of the fields to non-Iranian and also Iranian researchers, which led to the survey and excavation of a handful of new Palaeolithic sites since the early 21st century (Valadati Nasab 2011). However, serious studies go back to the mid-20th century, when Carleton Coon (1951) and then others carried out investigations in different areas (Smith 1986; Olszewski, Dibble 1993). The third stage coincided with research which mostly directed by Iranian archaeologists or jointly (Roustaei et al. 2002; 2004; Otte et al. 2009). In this ongoing stage, some sites were also revisited (Roustaei et al. 2004; Otte et al. 2009) and some areas have been studied for the first time (Mohammadifar, Molarjem 2008; Biglari et al. 2000; Biglari, Heidary 2001). In this regard, the Mehran plain in the southern part of Ilam province in southwestern Iran, adjacent to the Iraqi border, was surveyed in the late 1990s, resulting in the discovery of Palaeolithic remains at Amar Merdeg (Biglari et al. 2000; Biglari, Shidrang 2006; Nokandeh 2010).

The plain is approximately 400km² in area, bounded by Pashmin Mountains to the north, the Hamrin Mountains to the south, the Iraqi border to the west and Mt. Anaran to the east (Fig. 1). It is also fed by three main rivers, the Konjam Cham, Gavi and Chan-
Hojjat Darabi, Ardeshir Javanmardzadeh, Amir Beshkani and Mana Jami-Alahmadi

goleh, which all spring in the northern mountains and flow into Iraq.

Archaeological project of the Mehran Plain: Paleolithic survey

Archaeological studies of the Mehran Plain were begun in the mid-1990s by Alimohammad Khalilian, who launched an investigation to identify all ancient remains, then continued by Gabriel Nokandeh resulting in 62 sites from various periods being recorded (Nokandeh 2010). Later research focused primarily on the Neolithic period (Darabi, Fazeli 2009; Zeidi pers. comm.). Geographically, the plain is located amidst three archaeologically important regions of Mesopotamia and the Susa plains to the west and east, respectively, and the Central Zagros to the north. Thus the Mehran Plain is much more important in terms of relationships between these regions. However, due to political problems such as Iraq-Iran war, very little was known about the prehistoric settlement change and continuity of the plain until a long-term research project named ‘Archaeological Project of the Mehran Plain’ was begun in 2010. Although the project is mainly focused on investigating both Neolithic and Chalcolithic periods, we also based one of our survey objectives on identifying Palaeolithic remains, which will be discussed in this paper. The survey directed by H. Darabi in the spring of 2010 resulted in the discovery of 36 prehistoric sites (Mr001–Mr036), of which 15 sites are attributed to various periods of the Palaeolithic on the basis of the stone finds. Table 1 shows basic information on the sites. We proposed that the northern calcareous mountains with their numerous caves and shelters and also the Pleistocene hillocks on the plain not buried by the later Holocene alluviation were occupied during the Palaeolithic. Due to a shortage of time, the survey coverage was limited to the plain itself, while the northern mountainous areas were not investigated. So, we have the plain information itself and hope to complete our research in future. However, 22 localities were mapped, of which 16 are techno-typologically dated. As the prehistoric settlements were affected by environmental and geomorphological elements, this needs to be taken into account here. The Mehran plain has an elevation above sea level varying from 150m in the west up to 400m in the east and is buried under post-Pleistocene alluviation, with deposits of varying thickness. The north-northeastern mountain areas were formed during the second and third geological era from various lime stones. It should be noted that the northern mountains are oriented northwest-southeast parallel to the Zagros chain. Geologically, the plain is located in the midst of both tectonic zones of the Zagros fault and lowlands of Khuzistan (Brookes 1989). But the prominent features in the plain are the numerous scattered hillocks which may have been formed by the accumulation of catastrophic flood alluviation during the Pleistocene (Biglari et al. 2000.749). The tab. 1. Table showing the variant primary information of the discovered sites.

<table>
<thead>
<tr>
<th>Site name</th>
<th>Coordination</th>
<th>Z (a.s.l.)</th>
<th>Area (m)</th>
</tr>
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source of the sediments is the Aghajari formation and the overlying and Bakhtiyari conglomerate of the Zagros front ranges (Eyvazi 1995). Abundant lumps of chert pebble, cobbles and nodules are found on the surface of most of the hillocks, which in terms of analysing the distribution pattern of Palaeolithic occupation are very significant (Brantingham 2003; Biglari 2004; Heydari 2004; 2007) and we will refer to this below.

**Lower Palaeolithic**

As mentioned, 9 sites contain a Lower Palaeolithic assemblage, which enhances our information on this period in the plain, as it was already known from only one site called Amar-Merdeg (Fig. 4). It should be noted that since this site covers a cluster of separate hills, we recorded it again as four localities in order to take more samples to be studied more exactly.

**Mr003:** where the Lashtar stream flows to the Changloleh River at the easternmost area of the plain, an assemblage of chipped stones was scattered over the left bank. Indeed, the site was established on a conglomerate terrace. Typologically, the pebbles, flakes and a small quantity of unifacial and bifacial choppers and unipolar cores were mainly by-products of working chert pebbles.

**Mr009:** some 2km to the north of Chalab village, many hills are visible over an area of c. 1.5km$^2$ at an elevation of 366m above sea level. Chert pebble, cobbles and nodule are present on the hilly surfaces, these were used to produce various stone tools such as polyhedron cores (Fig. 3.3), a partially bifacial chopper, a pointed chopper and bifacial tools (Fig. 3.4–6). We also found a single hand-axe like which was heavily flaked (Figs. 3.1; 5.1). The chipped stone has a different concentration on the basis of the density of raw material.

**Mr012:** 5km to the southwest of Mr009 and 1km to the west of Chalab village, abundant chipped stone is scattered among the chert raw material similarly to what is seen at the other sites, although most of the samples collected are attributable to later Palaeolithic periods, of which one bifacial tool with 6cm in length is notable. The distal end of this tool is rounded in form and was unretouched. However, the proximal end was flaked on one side, while...
the other side is cortical. This bifacial tool is heavily patinated, like those found in Amar Merdeg (Biglari pers. comm.).

**Mr03**; this site, located some 4km to the west of Chalab village on the northern edge of the Mehran-Dehuran road, extends over an area of about less than 2km$^2$. Of the collected samples, two polyhedrons made from chert pebbles are attributed to Lower Palaeolithic period.

**Mr015–16–17–18 (Amar Merdeg Collection):** a cluster of hills extending over an area of c. 10km$^2$ less than 1km to the east of the Konjan-Cham river and 7km to the north of the town of Mehran, at 250–300m above sea level (Fig. 2). As a result of the previous survey in 1999, some of the samples collected from the site such as chopping tools were attributed to the Lower Palaeolithic (Biglari et al. 2000.749). Additional fieldwork in 2001 and 2004 resulted in the discovery of four bifaces and partial bifaces and more core-choppers (Biglari, Shidrang 2006.164). Indeed, Amar Merdeg is among those hillocks which were formed as the result of catastrophic flood alluviation during the Pleistocene and have numerous cobbles, pebbles and nodules of chert over the surface. Because of the dangerous military waste remaining from the Iraq-Iran war in the 1980s, the previous survey was devoted to limited areas of the site. But, we tried to take as many samples as possible in the present survey. However, the samples indicate a pattern of technological typology similar to what is known. What is visible among the Amar Merdeg 1 (Mr015) and 2 (Mr016) assemblages is numerous core-choppers and tested pebbles. We also found many partially bifacial chopper and unifacial choppers. But no bifacial tools were found, which could be a result of a sampling error. In Amar Merdeg 4 (Mr018) one hand-axe was discovered, although it is not so typical due to the later natural modification through time (Fig. 5.2). The raw material is mainly based on the chert, sandstone, and small amount of quartzite cobbles which are scattered over the surface of the site.

**Mr023**: some 5km to the southwest of Amar Merdeg, we found Paleolithic stone tools among later materials in an area of c. 2000m$^2$ bounded by fields. It should be noted that the site of Mr023 is not so prominent that it could be seen easily and it seems that was buried by Holocene alluviation. The Palaeolithic tools with denser concentration in west area of the site are distinguished from the later lithics by their different raw material, techno-typology and patina. Of these, one hand-axe with 10cm in length and 7cm in width, were discovered. The hand-axe is heavily retouched and only a small cortical area on both sides was unretouched (Fig. 3.2). Although this artefact was made of mudstone, chert and sandstone was the primary raw material at the site.

Fig. 4. Map showing the distribution pattern of Lower Palaeolithic sites on the Mehran Plain.

Fig. 5. The common presence of two techno-typologically different bifacial (top row) and Levalloisian (bottom row) tools on the Mehran Plain.
In terms of the Lower Palaeolithic period, two points can be made: first, as the raw material to produce tools, the abundant chert stones on the surfaces of hillocks attracted the inhabitants of the plain. Second, all the localities in this period contain later Middle Palaeolithic remains, indicating continuity of occupation continuation, as suitable raw material was easily acquired. This, however, makes it difficult to identify the tools from each period, although they appear as two techno-typologically different bifacial and Levalloisian tools, respectively (Fig. 5). It should also be noted that the Lower Palaeolithic tools have a heavier patina on the scar surface than those of the Middle Palaeolithic.

**Middle Palaeolithic**

Since all the previous localities (except nos. Mr003 and 023) also yielded Middle Palaeolithic stone tools, the settlement pattern of this period somewhat resembles what is seen in the earlier period of the Lower Palaeolithic. Therefore, the geographical setting of these repetitive sites is here avoided and their typical stone tools are merely described. Moreover, the survey identified three new sites (Mr014–21–36; Fig. 6).

**Mr009:** most of the surface chipped stones at this site could be dated to the Middle Palaeolithic period. Although no typical Levallois core was found, other indicators such as centripetal, bipolar and discoid cores along with their related tools are notable (Fig. 7.2, 3, 7). It should be mentioned that direct retouch was mainly used to produce tools such as scrapers.

**Mr012:** this site contained numerous techno-typologically Levalloisian tools over an area c. 3km². Apart from those related to the Lower Palaeolithic, Levallois cores - such as a sub-rounded one and related debitage - are also scattered over the surface. Flakes with *Chapeau de jendarme* platform were the most common type. Some of the tools had been reused.

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**Fig. 6. Map showing the distribution pattern of Middle Palaeolithic sites on the Mehran Plain.**

**Fig. 7. Middle Palaeolithic stone tools from the Mehran Plain. 1 Levallois core; 2 centri-petal core; 3, 4 flake cores; 5 Levallois point; 6 side scraper; 7 discoid core.**
**Mr013**: the Levallois technique could be also attested at this site on the basis of the presence of some tools such as a Levallois blade core and a double-sided scraper made on an elongated flake.

**Mr014**: this locality is located about 2km to the northwest of Chalab village in an area c. 2km² extending over several hillocks. Some single and multi-platform cores and different related debitage are visible on the surface, but no Levallois core was discovered, which could be a result of a sampling error. A scraper made on a débordante blade tentatively attributed to the Middle Palaeolithic is worth noting.

**Mr015–16–17–18 (Amar Merdeg)**: most of the Amar Merdeg assemblage can be dated to Middle Palaeolithic with an emphasis on Levallois technology. Various tools such as a Levalloisian point with Chapeau de jendarme platform and various kinds of centripetal, discoid, single-platform and multi-platform cores are very common at the site.

**Mr021**: this site is located on the Chogha Khulami hillocks, covering about 1.2km² in area, 5km to the north of Mehran Town on the left bank of the Konjan-Cham River. The numerous chert stones seen on the surface of these hillocks were used as raw material, as at Amar Merdeg. The collected assemblage indicates an emphasis on Levallois technology. Moreover, some tools were produced as a result of direct percussion. Techno-typologically the sampled tools, however, show a similar pattern to those of nearby Amar Merdeg, and centripetal, discoid, single-platform and multi-platform cores are also visible here. Although the site is near Amar Merdeg to the east, it has yielded no Lower Palaeolithic tools so far. This might be related to a sampling error; we await the discovery of earlier material.

**Mr036**: 8km to the west of Mr012, numerous chipped stones are scattered in a vast area which is not precisely defined. Levallois cores and tools are visible among the abundant chert pebbles and cobbles. Moreover, the most prominent indicator is a Mousterian Point. Many other points with Chapeau de jendarme platforms should also be taken into account (Fig. 7.1, 4–6). However, various scrapers make up a high proportion of the assemblage.

**Upper Palaeolithic and beyond**

The Upper Palaeolithic material is not as diagnostic as the Middle Palaeolithic. This prevents the easy attribution of the tools, which remains one of the most important research objectives for the future. However, a rock shelter known as Kelaw Pikeh has already been attributed to the Upper Palaeolithic (Nokandeh 2010). We revisited the site (Mr034) and took samples which are mainly based on different scrapers with no typical tool (Fig. 8). Two more sites were also dated to the Upper Palaeolithic or even the Epi-Palaeolithic (Fig. 9).

**Mr005**: this site is located on the bank of the Lash-tar stream in the easternmost part of the plain. Various tools such as scrapers, blades and cores made from red and light grey chert were collected from
Palaeolithic occupation of the Mehran Plain in Southwestern Iran

the surface. However, a burin was also found which was made on a blade and could be assigned to the Upper Palaeolithic (Fig. 10.3).

Mr010: some 5km to the north of the Chalab village in the Daraw Palk Valley, a rock shelter is located which seems to have collapsed through time; a freshwater spring flows 300km to the northeast which is used by local nomads as their main supply water. Chipped stones distributed among large stone slabs. The most significant tools are cores, blades, bladelets and scrapers, all of which are made from dark grey flint. No blade cores were found. Most of the tools are made on blades, of which a double-sided scraper with heavy retouch is notable (Fig. 10.1). Moreover, a burin spall was also discovered (Fig. 10.2) which could be taken as an indicator of possible Epi-Palaeolithic occupation.

Finally, it should be noted that, although some of these tools are attributable to both the Upper Palaeolithic and the Epi-Palaeolithic periods, we need more data, which is expected to be found on the northern parts of the plain.

Discussion and conclusion

The present survey indicates Palaeolithic occupation of the Mehran Plain at different times. Techno-typologically, we based our chronology mainly on materials from the nearby region of the Central Zagros to the north (Tab. 2).

The finds indicate that the Mehran Plain could have been occupied first in the later Lower Palaeolithic. As mentioned above, the surface materials are hard to place within the Lower Palaeolithic, as in the case of the material found in the Hulailan Valley (Mortensen 1993). Most of the Lower Palaeolithic tools are chopping tools, which could not be dated individually to particular periods. However, the presence of bifacial tools and handaxes could be taken as a prominent indicator of Lower Palaeolithic occupation of the plain. These tools have been discovered in different areas, such as Gakia in Kermanshah (Braidwood 1960), Pal Barik in Hulailan (Mortensen 1993), Kurun Bozan Valley on the bank of the Seimarreh River (Alibaigi et al. 2011) or even in East Ajarbaijan to the north (Sadek-Kooros 1976; Singer, Wymer 1978) as an indication of the Achuelian tradition. While one of the routes that early hominids supposedly took into Iran is

Tab. 2. Table showing the chronology of Palaeolithic sites found on the Mehran Plain in comparison with the Central Zagros (after Roustaei et al. 2004.699, Fig. 6 with some modifications).
from northern Mesopotamia and along the southwestern foothills of the Zagros range (Rolland 2001), the recent remains from Mehran Plain are worth noting.

However, Middle Palaeolithic occupation is much more easily recognised than Lower Palaeolithic on the Mehran Plain, similar to what is seen in highland Zagros. Excavations at several sites in western Iran, such as Bisotun cave (Coon 1951; Dibble 1984), Warwasi rock shelter (Dibble, Holdaway 1993), Ghar-i-Khar (Smith 1986:18) and Konj and Arjenah caves (Baumler, Speth 1993; Hole, Flannery 1967) have provided a sufficient basis for dating the Middle Palaeolithic occupation, based mainly on the occurrence of the Mousterian tradition. Unlike these sites, the Mehran plain yielded open-air sites with Levalloisian tools, although the calcareous northern mountains need to be surveyed in future for possible caves and rock shelters with Middle Palaeolithic deposits. However, the present survey indicates that Palaeolithic occupation was concentrated primarily on hillocks where chert pebbles and cobbles of various sizes are visible. It seems that these hillocks were partly buried by the later Holocene alleviation, and therefore those areas which remained from the Pleistocene period contain Palaeolithic artefacts on the surface. We think the abundant raw materials attracted the Palaeolithic inhabitants at various times, resulting in the presence of different typo-technologically stone tools from both the Lower and Middle Palaeolithic periods. In terms of later occupation, the finds were so few that no conclusion may be drawn, and therefore it should be regarded as a significant issue for future research.

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References


