The Importance of Iran's Paleolithic Record for Unraveling Key Issues in Human Evolution

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Abstract: Iran is justly famous for its spectacular record of Bronze Age, Iron Age, and later cultures, making it one of the world's premier centers of emerging early civilizations. Far less is known about Iran's Paleolithic record, which almost certainly spans nearly two million years and represents more than 99.5% of the country's archaeological record. This paper highlights some of the most interesting new findings in paleoanthropology, archaeology, and genetics that are transforming our understanding of the human story in Eurasia. Not surprisingly, however, much is in flux and many issues and questions have arisen that are unresolved or poorly understood. The goal of this paper is to underscore the tremendous potential of Iran's rich but underappreciated Paleolithic record for contributing to our understanding of this dynamic and fascinating stage in the human career.

Keywords: Iran, Middle East, Paleolithic, *Homo erectus*, Neanderthal, Modern Human Origins

Introduction

Iran is justly famous for its marvelous record of the Bronze Age, Iron Age, and later periods, making it one of the world's premier centers of early civilizations. I can still remember my utter amazement when, as a graduate student, I first set foot in Iran in January 1969, and saw archaeological mounds seemingly everywhere I looked; in many places the horizon was literally dotted with them. And some, such as Tal-e Malyan, were so big that at first I mistook them for natural hills. So it is no surprise that Iran takes such great pride of its prehistory and early history, and equally unsurprising that these early civilizations feature so prominently in the thinking and writing of scholars around the globe.

What is less well-recognized, both in Iran and abroad, is the phenomenal Paleolithic or "Stone Age" record that Iran possesses. There are caves and rockshelters almost everywhere, and the comparatively small number of these natural repositories of ancient human presence that have been looked at closely show the wealth of information these sites contain about earlier stages of human career, i.e., remote periods before the emergence of empires and cities, before the invention of writing, before the development of ceramics and metallurgy, even before the period when we can begin to discern the remains of huts or other sorts of man-made shelters. Judging by the types of early stone tools (e.g., handaxes) that Iranian and foreign archaeologists have found in many parts of the country, so far mostly eroded out on the surface, humans have inhabited Iran for hundreds of thousands of years, in fact quite likely for up to as much as two million years (e.g., Biglari and Jahani 2011; Biglari *et al*. 2000; Biglari and Shidrang 2006; Conard and Ghasidian 2011; Ghasidian *et al.* 2009; Heydari-Guran *et al.* 2009; Hole and Flannery 1967; Olszewski and Dibble 1993; Otte and Kozlowski 2007; Otte *et al.* 2007, 2009, 2012; Vahdati Nasab 2011; Vahdati Nasab *et al.* 2013).

In order to better comprehend the immensity of this vast span of time, think of those two million years as a 24-hour day. If we then assume that the great Bronze Age and Iron Age civilizations of Iran arose in the last 6,000 years or so, this would represent only the last 4 minutes of the waning day! Even agriculture, a way of life that we usually think of as a fundamental and timeless part of human existence (cf., Zeder *et al*. 2006), is only about 10,000 years old, or a mere 7 minutes of our 24-hour day.Humans lived the other 23 hours and 53 minutes, or roughly 99.5% of that 24-hour day, not as farmers, but as Paleolithic

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hunters and gatherers. That makes the Paleolithic an incredibly important part of human story, in fact most of it. That's when our basic anatomy, behavior, and genetic makeup took shape. And that's when humans developed language and took control of fire, in Charles Darwin's view humankind's two most momentous achievements. Much of the Paleolithic story is still only known in outline and, for the most part, not so well understood. And much of the human story is almost certainly recorded right here in Iran, preserved in caves and rockshelters that dot Iran's magnificent mountain landscape, in the fluvial and alluvial deposits of the country's many ancient river valleys, and in the shoreline and deltaic sediments of its once extensive Pleistocene ("Ice Age") lakes. The facts are just waiting to be discovered and deciphered.

Early Hominins in Africa

Let us put the tremendous potential of the Iranian record in a larger perspective. However, to do so we must shift momentarily to sub-Saharan Africa and go back considerably further in time, to a period of some 5-7 million years ago during the late Miocene and Pliocene when the first proto-humans (hominins) roamed the African landscape. These earliest hominins, known collectively as *Australopithecines*, had brains barely larger than that of a chimpanzee (~300-350 cc), though they differed in many respects from their primate cousins, most notably in their obligatory bipedal (two-legged) mode of locomotion, one of humankind's most curious and distinctive features (Lewin 2004). Our own genus, *Homo*, which also first emerged in Africa, appeared on the scene about 2.6-2.5 million years ago, hand-in-hand with the first crude "Oldowan" stone tools, so named because of the pioneering work on these early tool assemblages by Mary and Louis Leakey at the famous site of Olduvai Gorge in Tanzania (de Heinzelin *et al*. 1999; Leakey 1971; Semaw 2000). These early tool-making members of the genus *Homo*, classified by scholars into at least three different species (*H. habilis, H. rudolfensis, H. ergaster*), were also larger-brained, with estimates on the order of 600-700 cc, a near doubling of cranial capacity, though still only a fraction of the 1300 cc or so typical of modern people (Grine *et al*. 2009). The fossil record for this early part of the history of our genus is quite meager, but we do have a fair number of archaeological sites, particularly in East Africa, with clearly butchered animal bones and no shortage of Oldowan tools (Pickering and Bunn 2012). These tools, while distinctive and easy to recognize, are very simple, consisting mostly of unmodified flakes struck by hard-hammer percussion from a block of basalt, flint, or other brittle material, as well as rounded river cobbles with a few flakes removed from one edge to form crude hand-held "choppers" (Hovers and Braun 2009).

The Lower Paleolithic and the Exodus from Africa

Then a momentous "event" occurred in the unfolding human career, a more evolved member of our genus called by paleoanthropologists as *Homo erectus*, with a brain size thought by many to have increased to as much as 900 cc, expanded out of Africa, spreading first into Asia and slightly later into Europe (Lewin 2004). For years archaeologists thought the initial exodus took place about 1.5 million years ago, and was made possible by the development of a new, and supposedly more advanced stone tool technology known to archaeologists as the "Acheulian" (e.g., Tchernov 1988). For those readers not familiar with Paleolithic prehistory, the hallmark of this new technology is the handaxe, a large pointed tool shaped and thinned by the removal of several flakes from both faces of the tool all the way or nearly all the way around the perimeter. Handaxes, which remain quite common in the archaeological record until as recently as 300,000-250,000 years ago, are found throughout Europe and in much of western Asia, including Iran, but virtually disappear to the east of Burma (east of the so-called "Movius line"). Unfortunately, human fossils dating to the earliest stages of the Paleolithic (Lower Paleolithic) are quite rare in Eurasia, with some of the best preserved *Homo erectus* remains (mostly cranial) coming, interestingly, from the extreme eastern end of their distribution e.g., in Indonesia (Java). While Acheulian stone tools are comparatively abundant in Europe and western Asia, most of the well-dated handaxe occurrences outside of Africa have actually proved to be relatively late, falling after about 600,000 years ago and associated with humans possessing brains in excess of 900-1000 cc. What advantage Acheulian tools might have conferred on their makers that might have underwritten the expansion of *H. erectus* into more northerly latitudes was unknown; archaeologists for the most part simply assume that, because the appearance of handaxes, increased brain size, greater emphasis on meat-eating, and human expansion out of Africa all seems to have occurred at more-or-less the same time, there must have been some sort of causal relationship between them that permitted the successful entry of *H. erectus* into environments with no close analogues in Africa (Agustí and Lordkipanidze 2011).

That's where the picture stood until as recently as the early 1990s, when the conventional wisdom rapidly began to unravel. After decades of controversy about the dating of the *H. erectus* remains from Java, with most scholars guessing at an age of about a million years, Swisher *et a*l. (1994) published startling new radiometric dates that pushed the age of these fossils back to ~1.8 million years ago, making them more or less contemporary with the archaeological remains from FLK-*Zinjanthropus* and other Oldowan-producing localities in Bed I at Olduvai Gorge.

At almost the same time, spectacularly preserved fossils of early *H. ergaster* (there is still disagreement about their taxonomy), dating to an astounding 1.85-1.77 million years ago, were found remarkably close to Iran at the site of Dmanisi in the Republic of Georgia (Gabunia and Vekua 1995). How close? The straight-line distance between Tbilisi and Tehran is only about 880 km, considerably less than the length of Iran itself. The five well-preserved Dmanisi crania recovered thus far, which arguably represent a single closely related population or "paleodeme," display an utterly unexpected degree of morphological and size variability, in fact greater than the differences separating *H. habilis, H. rudolfensis,* and *H. ergaster*. Thus, what paleoanthropologists had been assuming were distinct species may actually all be members of a single evolving lineage (Lordkipanidze *et al*. 2013). The Dmanisi fossils, together with the re-dating of the Javanese fossils, have revolutionized our thinking about the spread of humans out of Africa into Eurasia. Contrary to what most scholars had assumed, the Dmanisi fossils are small-brained, averaging only about 550-700 cc. Equally surprising were the tools found at Dmanisi—the technology was Oldowan, not Acheulian. There were no handaxes, just lots of unmodified flakes and chopper-like tools. These early humans had left Africa well before the appearance of the Acheulian (Agustí and Lordkipanidze 2011).

As a result of these momentous discoveries, archaeologists and paleoanthropologists have had to go back to the drawing boards in order to try to understand why these early members of our genus left Africa, and what made such an exodus possible (Dennell and Roebroeks 2005). Our archaeological and fossil record, not to mention our understanding of the paleoenvironment and paleoecology during this remote period of the Plio-Pleistocene, are still frustratingly incomplete. Dmanisi is an incredibly important site but, like the famous human fossil localities at Sterkfontein and Swartkrans in South Africa, as well as those in Java, Dmanisi is not a "living site." We still don't have a "campsite" like FLK-*Zinjanthropus* in Olduvai Gorge, a place where these first Eurasian pioneers actually slept, ate, and fashioned their tools. The human remains at Dmanisi were apparently the victims of carnivores who dragged their remains into underground dens where the crania and other bones became preserved. And the human fossils from Java for the most part appear to be in secondary fluvial contexts. Without detailed behavioral information of the sort that one can get from a living site, we won't be able to address the really interesting questions—"how" and "why" humans, some 2.0 million or more years ago, were able to expand their range far beyond the boundaries of Africa, colonizing radically new habitats unlike anything they had experienced previously, and all this with a brain less than half the size of our own, a primitive Oldowan technology, and seemingly without fire and hence without the ability to cook (but see Wrangham 2009). Iran could easily hold the key to many of these issues. If early hominins were in Georgia two million years ago, they very likely were in Iran as well. Another FLK-*Zinjanthropus* site could easily exist in Iran, somewhere, just waiting to be discovered and studied.

Not surprisingly, many critical questions remain unresolved about these early stages of the human career, and Iran could provide the data that would allow us to fill in some of the major voids in our knowledge. For example, how did these early members of our genus survive in the more northerly latitudes of Eurasia? Did they already possess language and control fire? Language, regrettably, is almost impossible to monitor in the archaeological record, and is an issue that can probably only be resolved through comparative genetic studies of living humans and primates, and perhaps through the study of fossil endocasts. On the other hand, one would expect that fire would leave more tangible traces in the form of charcoal, ash, hearth basins, fire-cracked rock, and burned bones. Unfortunately, chemical processes— called "diagenesis"—alter these remains to the point that after a few hundred thousand years they are no longer easily identifiable (Karkanas *et al*. 2007). Our problems are exacerbated by the fact that humans apparently did not dig basins for their fires until a few hundred thousand years ago, nor did they line their hearths with stones for warmth-banking or use heated stones for cooking until a mere 30,000 years ago or so, making what might seem obvious evidence for the controlled use of fire helpful only for the more recent parts of the Paleolithic (e.g., Straus 1989; Speth 2012: 25; see also Alperson-Afil 2012). Nevertheless, the application of modern biochemical and geochemical techniques may make it possible for us to recognize evidence of burning in the distant past. Knowing when hominins gained control of fire is critical to understanding their exodus out of Africa. Fire would not only have provided warmth and protection from predators, but it would have allowed early humans to cook their foods. Without that ability, many potential plant foods would have been inedible, toxic, or difficult to digest. And raw meat is calorically much more costly to metabolize than cooked meat (Wrangham 2009).

What animals were these early members of our genus exploiting and how did they kill them? Or were they scavenging carcasses killed and abandoned by large predators (see Lupo 2012; Pickering and Bunn 2012)? We have no evidence of spears (or stone spear points) until 400,000-300,000 years ago, based on the chance find of beautifully-preserved wooden spears at the German site of Schoeningen (Thieme 1997; see also Sahle *et al*. 2013). In the absence of the weapons themselves, the age structure of the animals brought back to a site by its early inhabitants can be informative. Human hunters, at least during the last 500,000-400,000 years, often sought out prime-age adults,

whereas large predators like lions, leopards, and hyenas commonly go after older or younger individuals (Bunn and Gurtov 2014). Was early *Homo* outside of Africa already a bona fide hunter, focusing on prime-adult animals, or did these intrepid early Eurasian colonists obtain most of their meat by scavenging scraps of muscle tissue and marrow from partially devoured carcasses left behind by other predators?

Many other questions remain unresolved as well. Did early *Homo* in Eurasia already possess a division of labor, as might be suggested by the fact that, at least in Africa, they regularly transported meat (and bones) back to a central place or home base presumably to share with other members of their social group, a behavioral pattern that typifies modern hunters and gatherers, or did males and females forage largely independently of one another (compare Soffer 1994 and Stiner and Kuhn 2009; Hayden 2012; Ruff 1987)? How big were their social groups? How did widely dispersed and highly mobile groups succeed in maintaining sufficient contact with others to remain reproductively viable (Wobst 1974; Hayden 2012)? These are just a few of the many interesting and important questions that Iranian archaeologists working with the early periods of the Paleolithic might well be able to resolve.

Neanderthals and the Middle Paleolithic

Iran's Paleolithic record has great potential for exploring another fascinating, yet poorly understood stage in the human career, i.e., the Middle Paleolithic, or the time of the Neanderthals. For generations Neanderthals have been viewed as a "European phenomenon," despite the fact that Middle Paleolithic tools, occasional burials and fragmentary human remains, and most recently their genes, have been found throughout the Middle East and beyond, from the Levant at least as far as the Altai Mountains in Siberia, and farther still, perhaps reaching all the way to East Asia (e.g., Bar-Yosef and Wang 2012; Prüfer *et al*. 2014; Wall *et al*. 2013). Nevertheless, it has become traditional to view the Neanderthal's peculiar anatomy as the outcome of a long in situ accretionary process, the cumulative evolutionary consequence of their adaptation in relative isolation over countless millennia to the harsh climatic conditions of glaciated Europe. Thus, the presence of distinctly Neanderthal-like features in the spectacular skeletons from the Sima de los Huesos in Spain, remains which predate "classic" European Neanderthals by as much as two hundred thousand years, came as no surprise to paleoanthropologists. The Sima population seemed like the perfect and logical ancestor for later European Neanderthals.

But the results of recent mitochondrial DNA studies of Sima specimens suggest otherwise. Instead of being most closely linked genetically to later European Neanderthals, their ties are closest to Denisovans, an archaic Asian population first recognized thousands of kilometers to the east in the Altai Mountains in Siberia (Dalén *et al*. 2012; Krause *et al*. 2007, 2010; Meyer *et al*. 2014). As a result of these eye-opening genetic discoveries, a fascinating, albeit tentative, picture is beginning to take shape. Perhaps the true homeland of the Neanderthals was not in Europe but in Asia (Hawks 2013). Maybe Neanderthal presence in Europe was episodic, the result of comparatively short-lived pulses of migration or population expansion from regions to the east that collapsed each time glacial climates deteriorated to the point that they could no longer maintain a viable foothold (Bar-Yosef 1992; Bradtmöller *et al*. 2012; Hublin and Roebroeks 2009). If true, the Middle East and Central Asia might lie at the very heart of traditional Neanderthal range, not at its margins as most scholars until quite recently assumed. The many Middle Paleolithic caves, rockshelters, and open-air sites that dot the Iranian landscape are certainly compatible with such a scenario.

The Middle Paleolithic record of Iran is important for another reason as well. Humans with anatomy similar to our own first evolved in Africa between about 300,000 and 200,000 years ago, and then during the next 150,000 to 100,000 years expanded out of Africa into Eurasia (a second African exodus), reaching the Middle East by at least 120,000-100,000 years ago, western Europe by ~40,000, Melanesia and Australia by ~50,000, and the New World by ~20,000-15,000 years ago (Beyin 2011). Judging by recent studies of DNA extracted directly from the collagen in some of the better preserved fossils, most scholars are now coming to accept that these expanding "moderns" interbred, at least to some degree, with the mor "archaic"-looking humans they encountered along the way, such as Neanderthals in Europe and western Asia, the newly discovered Denisovans in Siberia, and undoubtedly other as yet undiscovered "archaics" elsewhere in Asia (Caspari and Wolpoff 2013; Dalén *et al*. 2012; Green *et al* 2010; Reich *et al*. 2010; Krause *et al*. 2010; Meyer *et al*. 2014 Prüfer *et al*. 2014; Wall *et al*. 2013). In fact, one might say that interbreeding was the "name of the game" in the Middle Paleolithic much as it is among humans today. Those who favor the interaction and interbreeding scenario place Neanderthals within our own species, using the label *H. sapiens neanderthalensis*. However, there are still many—curiously, most notably among archaeologists, less so among biological anthropologists—who continue to maintain that these "modern" newcomers completely replaced the more "archaic" Eurasians with no genetic exchange, either by killing them outright or by outcompeting them, a view clearly reflected by their placement of Neanderthals in a separate species (*H. neanderthalensis*). If interbreeding did in fact take place between the new "anatomically modern" migrants from Africa and the Neanderthal "natives" of Eurasia, as now

seems very likely, based on geography alone it probably would have first occurred in the Middle East, the region where the continents of Africa, Asia, and Europe come together.

A handful of human fossils, some of which morphologically Neanderthals, others more modern-looking, currently form the heart of this debate. Among the most famous of these finds are skeletal remains from Israel (Skhul, Qafzeh, Amud, Kebara, Tabun), Syria (Dederiyeh), right on Iran's doorstep in Iraqi Kurdistan (Shanidar), and to the east in Uzbekistan (Teshik Tash). But the sample of human fossils, and of well-excavated and well-documented archaeological sites, is still exceedingly small, far from adequate to cover an area as vast as the Middle East, and far too small to provide a representative picture of the 100,000-50,000 years during which anatomically modern humans spread, interacted with, and ultimately replaced Neanderthals and their "archaic" cousins. Again, Iran's archaeological record may well hold the key. The distinctive stone tools of this time period have been found on the surface and in caves and rockshelters throughout the country, making it clear that Iran has an exceptionally rich Middle Paleolithic record. In fact, it is Iran's fabulous Middle Paleolithic record that drew me to the country in the 1960s (Baumler and Speth 1993).

Modern Humans and the Upper Paleolithic

The Upper Paleolithic represents the last major stage of the Paleolithic and the period when fully modern humans (both anatomically and in terms of their behavioral capacities) had spread throughout Eurasia and into the New World. This period too is filled with momentous changes, many of which remain poorly understood. Despite the harsh realities of ice age climates that gripped much of northern Eurasia, human populations grew more rapidly than they had previously. Employing an ever-expanding array of new technologies, these intrepid foragers conquered some of the most inhospitable and difficult habitats on the globe—the boreal forests and tundras of the far north, the dense tropical rain forests of Africa and Southeast Asia, and some of the world's most arid deserts, almost certainly including the desertic regions of Iran. People discovered myriad new ways to process and prepare foods, including pottery, which makes its first appearance in Siberia, China, and Japan ~20,000-17,000 years ago. They also invented grinding stones and by at least 23,000 years ago were using them to turn wild grass seeds such as wheat and barley into flour, clearly setting the stage for the origins of agriculture, one of the most significant transformations in the entire history of humans on this planet. Upper Paleolithic peoples also invented the first compound tools and weapons employing multiple small, replaceable flint cutting-tools called "microliths," as well as the bow and arrow and numerous other devices and techniques for adapting to new and challenging environments.

But, as in the preceding periods of the Paleolithic, countless important questions about the Upper Paleolithic remain poorly understood. Perhaps not surprisingly, we know much more about the "what," "where," and "when" of Upper Paleolithic lifeways, and far less about the more interesting "how" and "why" questions. For example, did people during this period turn to tiny, labor-intensive resources like grass seeds because there were too many mouths to feed relative to the availability of their preferred foods (a "push" or "stress" view), or were they attracted to grasses and other weedy species because late Pleistocene climate changes increased their abundance to the point that they became profitable to exploit (a "pull" or "opportunity" view)? Why does long-distance exchange of marine shells, exotic flints, and other materials and objects become so much more evident in the Upper Paleolithic than previously? Are we witnessing the symbolically-motivated behavior of a newly emerged and cognitively superior form of human (Klein 2000), or a more mundane demographically-driven need for mechanisms of intergroup interaction and alliance brought about by declining mobility and increased packing of populations into territorially more restricted places on the landscape (Powell *et al*. 2010; Shennan 2001)?

One of the most interesting changes that took place during the Upper Paleolithic is a dramatic increase in human longevity, for the first time creating a generation of grandparents (Caspari and Lee 2006; Caspari and Wolpoff 2013; Hawkes 2003). Neanderthals in Europe and all earlier forms of *Homo* simply didn't live long enough for grandchildren and grandparents to overlap to any significant degree. Interestingly, however, both Neanderthals and their anatomically modern quasi-contemporaries in the Middle East show the beginnings of this transition, with adults living somewhat longer on average than their European counterparts. What were humans doing in the Upper Paleolithic, and already somewhat earlier in the Middle East, that so dramatically altered adult mortality and life-history patterns? Was it a technological change of some sort (the *deus ex machina* of much archaeological thinking), or are we instead seeing fundamental changes in the way human groups organized themselves or interacted with others, perhaps through new forms of kinship reckoning, intergroup alliance, or the use of sacred oral tradition, puberty rites, and other mechanisms to assure the reliable storage and retrieval of information critical for long-term group survival (Minc 1986; Speth 2013: 182-3; Whallon 2011)? Is the population increase evident in the Upper Paleolithic the cause or the consequence of these technological and/or social changes? We need far more archaeological data and much larger skeletal samples, but also more theory-driven research, to be able to answer these difficult but important questions. Again, Iran is in an

ideal position to address many of these unresolved issues. Both Middle and Upper Paleolithic sites are widespread in the country. The diagnostic blades and microliths of this last phase of the Paleolithic have been found in numerous caves and rockshelters, as well as in many places eroding out on the surface, pointing to a rich Upper Paleolithic record concealed just beneath the surface.

Concluding Remarks

Iran has a remarkable Paleolithic record, making it clear that much of the two-million-year-long story of humans outside of Africa is preserved right here within its very boundaries. It is also clear that interest in Paleolithic archaeology is very much alive in Iran. What is now needed is the infrastructure and support that would allow Iranian Paleolithic archaeology to emerge as a bona fide focus of research, where Iranian students with an interest in the deep past can be trained without having to go abroad, where large-scale interdisciplinary excavations can be fielded, and where collections can be analyzed, documented, conserved, and curated for the future. I am sure that, archaeologically, Iran is a very different place today from the one I experienced in 1969. While my six months in Iran excavating at Kunji Cave, a Middle Paleolithic site in the Zagros mountains near the modern city of Khorramabad, were among the most wonderful, exhilarating, and formative months of my life, a period that I frequently look back at with the greatest of pleasure, it was clear that Paleolithic archaeology in Iran had not come of age yet. I could find no one interested in these remote time periods, and the government agency in charge of issuing excavation permits, while wonderfully cordial and helpful throughout, was not really sure what to do with me. As a result, for several days I found myself bounced back and forth between the Department of Antiquities and the Department of the Environment until the Director of Antiquities took pity on me and issued a permit. When I returned to Tehran at the end of my excavations, there was similar uncertainty about what to do with the preceramic materials I had uncovered. It was clear they weren't viewed as antiquities, or at least not as "important" ones. The momentum is clearly there now, and Paleolithic archaeology in Iran is poised to emerge as a significant discipline in its own right, ready to take its place as an equal next to the well-established tradition of study of the country's many great civilizations. It is such a pleasure and honor for me to be a witness to this wonderful metamorphosis.

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I am very grateful to Hamed Vahdati Nasab for inviting me to submit to this journal an expanded version of what began as the Foreword to a forthcoming book of his. Although my own field work in Iran took place eons ago (1969), at a time when foreigners seemed to be the only ones interested in the Iranian paleolithic, it is such a delight now to see so many young Iranians becoming fascinated by these remote periods of prehistory. When I was a student, almost everything I learned about the paleolithic, except when it concerned the very earliest hominins, was drawn from Europe, the basic chronological framework we all diligently memorized was European, the cultural classifications and taxonomies were largely European (in fact mostly French), and Europe was presented as the center of the paleolithic universe, the place where most of the "action" was, with Asia seen as peripheral geographically and marginal developmentally. In essence, Asia was largely ignored. That perspective is now shifting, in fact quite dramatically so, and increasingly archaeologists and paleoanthropologists are coming to see Asia (and Africa) as dynamic centers of the human story, with Europe an interesting but rather remote and geographically marginal "peninsula" sticking out of the side of the giant continent of Asia. With that shift in perspective, Iran's paleolithic record becomes anything but marginal. As I hope I have conveyed in this brief paper, the Middle East may have played a prominent role in some of humankind's most interesting and significant transformations. And given that Iran makes up such a large part of this vast region, the country's rich paleolithic record is of paramount importance. This is truly an exciting time for paleolithic archaeologists of Iran.

References

Agustí, J. and D. Lordkipanidze,
2011 How "African" Was the Early Human Dispersal Out of Africa? *Quaternary Science Reviews* 30(11-12), 1338-1342.

Alperson-Afil, N.,
2012 Archaeology of Fire: Methodological Aspects of Reconstructing Fire History of Prehistoric Archaeological Sites. *Earth-Science Reviews* 113(3-4), 111-119.

Bar-Yosef, O.,
1992 The Role of Western Asia in Modern Human Origins. *Philosophical Transactions of the Royal Society* (London), Series B. *Biological Sciences* 337B(1280), 193-200.

Bar-Yosef, O. and W. Youping,
2012 Paleolithic Archaeology in China. *Annual Review of Anthropology* 41, 319-335.

Baumler, M. F. and J. D. Speth,
1993 A Middle Paleolithic Assemblage from Kunji Cave, Iran. In: Olszewski, D.I. & Dibble, H.L.(Eds.), *The Paleolithic Prehistory of the Zagros-Taurus*, University Museum Symposium Series 5, University Museum Monograph 83. University of Pennsylvania, Philadelphia, pp. 1-73.

Beyin, A.,
2011 Upper Pleistocene Human Dispersals out of Africa: A Review of the Current State of the Debate.*International Journal of Evolutionary Biology* 2011(Article ID 615094):doi:10.4061/2011/615094.

Biglari, F. and V. Jahani,
2011 The Pleistocene Human Settlement in Gilan, Southwest Caspian Sea: Recent Research. *Eurasian Prehistory* 8(1-2), 3-28.

Biglari, F., G. Nokandeh and S. Heydari,
2000 A Recent Find of a Possible Lower Palaeolithic Assemblage from the Foothills of the Zagros Mountains.*Antiquity* 74, 749-750.

Biglari, F. and S. Shidrang,
2006 The Lower Paleolithic Occupation of Iran. *Near Eastern Archaeology* 69(3-4), 160-168.

Bradtmöller, M., A. Pastoors, B. Weninger and G. C. Weniger,
2012 The Repeated Replacement Model—Rapid Climate Change and Population Dynamics in Late Pleistocene Europe. *Quaternary International* 247, 38-49.

Bunn, H. T. and A. N. Gurtov,
2014 Prey Mortality Profiles Indicate that Early Pleistocene Homo at Olduvai Was an Ambush Predator.*Quaternary International* (in press)

Caspari, R. and S. H. Lee,
2006 Is Human Longevity a Consequence of Cultural Change or Modern Biology? *American Journal of Physical Anthropology* 129(4), 512-517.

Caspari, R. and M. H. Wolpoff,
2013 The Process of Modern Human Origins: The Evolutionary and Demographic Changes Giving Rise to Modern Humans." In: Smith, F.H & Ahern, J.C.(Eds.), *The Origins of Modern Humans: Biology Reconsidered*, pp.355-391.

Conard, N. J. and E. Ghasidian,
2011 The Rostamian Cultural Group and the Taxonomy of the Iranian Upper Paleolithic. In: Conard, N.J., Drechsler, P & Morales, A.(Eds.), *Between Sand and Sea: The Archaeology and Human Ecology of Southwestern Asia. Festschrift in Honor of Hans-Peter Uerpmann*, Kerns Verlag, Tübingen, Germany, pp. 33-52.

Dalén, L., L. Orlando, B. Shapiro, M. Brandström Durling, R. Quam, M. T. P. Gilbert, J. C. Díez Fernández-Lomana, E. Willerslev, J. L. Arsuaga, and A. Götherström,
2012 Partial Genetic Turnover in Neandertals: Continuity in the East and Population Replacement in the West. *Molecular Biology and Evolution* 29(8), 1893-1897.

de Heinzelin, J., J. D. Clark, T. White, W. Hart, P. Renne, G. WoldeGabriel, Y. Beyene, and E. Vrba,
1999 Environment and Behavior of 2.5-Million-Year-Old Bouri Hominids. *Science*, 284(5414), 625-629.

Dennell, R. and W. Roebroeks,
2005 An Asian Perspective on Early Human Dispersal from Africa. *Nature* 438(7071), 1099-1104.

Gabunia, L. K. and A. K. Vekua,
1995 A Plio-Pleistocene Hominid from Dmanisi, East Georgia, Caucasus. *Nature* 373(6514), 509-512.

Ghasidian, E., A. Azadi, S. Heydari-Guran and N. J. Conard,
2009 Late Palaeolithic Cultural Traditions in the Basht Region of the Southern Zagros of Iran. In: Otte, M., Biglari, F. & Jaubert, J.(Eds.), *Iran Palaeolithic/Le Paléolithique d'Iran: Proceedings of the XV The World Congress UISPP*, Lisbon, 4-9 September 2006, (= BAR International Series S1968, Pp.125-140), Archaeopress, Oxford, pp.125-140.

Green, R. E., J. Krause, A. W. Briggs, T. Maricic, U. Stenzel, M. Kircher, N. Patterson, H. Li, H. Zhai, H. Y. Fritz, F. N. Hansen, E. Y. Durand, A. S. Malaspinas, J. D. Jensen, T. Marques-Bonet, C. Alkan, K. Prufer, M. Meyer, H. A. Burbano, J. M. Good, R. Schultz, A. Aximu-Petri, A. Butthof, B. Höber, B. Höffner, M. Siegemund, A. Weihmann, C. Nusbaum, E. S. Lander, C. Russ, N. Novod, J. Affourtit, M. Egholm, C. Verna, P. Rudan, D. Brajkovic, Ž. Kucan, I Gušic, V. B. Doronichev, L. V. Golovanova, C. Lalueza-Fox, M. D. L. Rasilla, J. Fortea, A. Rosas, R. W. Schmitz, P. L. F. Johnson, E. E. Eichler, D. Falush, E. Birney, J. C. Mullikin, M. Slatkin, R. Nielsen, J. Kelso, M. Lachmann, D. Reich, S. Pääbo,
2010 A Draft Sequence of the Neandertal Genome.*Science* 328(5979), 710-722.

Grine, F. E., J. G. Fleagle and R. E. Leakey (Eds.)
2009 *The First Humans: Origin and Early Evolution of the Genus Homo*, Springer, New York, NY.

Hawkes, K.,
2003 Grandmothers and the Evolution of Human Longevity. *American Journal of Human Biology* 15(3), 380-400.

Hawks, J. D.,
2013 The Denisova-Sima de los Huesos Connection. John Hawks Weblog, Posted 04 December 2013 (http://johnhawks.net/weblog/reviews/neandertals/neandertal_dna/sima-de-los-huesos-dna-meyer-2013.html).

Hayden, B.,
2012 Neandertal Social Structure? *Oxford Journal of Archaeology* 31(1), 1-26.

Heydari-Guran, S., E. Ghasidian and N. J. Conard,
2009 Iranian Paleolithic Sites on Travertine and Tufa Formations. In: Otte, M., Biglari, F. & Jaubert, J.(Eds.), *Iran Palaeolithic/Le Paléolithique d'Iran: Proceedings of the XV The World Congress UISPP*, Lisbon, 4-9 September 2006, Pp.125-140, (= BAR International Series S1968), Archaeopress, Oxford, pp. 109-124.

Hole, F. and K. V. Flannery,
1967 The Prehistory of Southwestern Iran: A Preliminary Report. *Proceedings of the Prehistoric Society* 33, 147-206.

Hovers, E. and D. R. Braun (Eds.)
2009 *Interdisciplinary Approaches to the Oldowan*. Springer, Dordrecht, The Netherlands.

Hublin, J. J. and W. Roebroeks,
2009 Ebb and Flow or Regional Extinctions? On the Character of Neandertal Occupation of Northern Environments. *Comptes Rendus Palevol* 8(5), 503-509.

Karkanas, P., R. Shahack-Gross, A. Ayalon, M. Bar-Matthews, R. Barkai, A. Frumkin, A. Gopher, M. C. Stiner,
2007 Evidence for Habitual Use of Fire at the End of the Lower Paleolithic: Site-formation Processes at Qesem Cave, Israel. *Journal of Human Evolution* 53(2), 197-212.

Klein, R. G.,
2000 Archaeology and the Evolution of Human Behavior. *Evolutionary Anthropology* 9(1), 17-36.

Krause, J., L. Orlando, D. Serre, B. Viola, K. Prüfer, M. P. Richards, J. J. Hublin, C. Hänni, A. P. Derevianko and S. Pääbo,
2007 Neanderthals in Central Asia and Siberia.*Nature* 449(7164), 902-904.

Krause, J., Q. Fu, J. M. Good, B. Viola, M. V. Shunkov, A. P. Derevianko, S. Pääbo,
2010 The Complete Mitochondrial DNA Genome of an Unknown Hominin from Southern Siberia. *Nature* 464(7290), 894-897.

Leakey, M. D.,
1971 *Olduvai Gorge, Vol. 3. Excavations in Beds I and II, 1960-1963*. Cambridge: Cambridge University Press.

Lewin, R.,
2004 *Human Evolution: An Illustrated Introduction*. 5th ed. Oxford: Blackwell Scientific Publications.

Lordkipanidze, D., M. S. Ponce de León, A. Margvelashvili, Y. Rak, G. P. Rightmire, A. Vekua, C. P. E. Zollikofer,
2013 A Complete Skull from Dmanisi, Georgia, and the Evolutionary Biology of Early Homo. *Science* 342(6156), 326-331.

Lupo, K. D.,
2012 On Early Hominin Meat Eating and Carcass Acquisition Strategies: Still Relevant After All These Years? In: Domínguez-Rodrigo, M. (Ed.), *Stone Tools and Fossil Bones: Debates in the Archaeology of Human Origins*, Cambridge University Press, Cambridge, England, pp.115-151.

Meyer, M., Q. Fu, A. Aximu-Petri, I. Glocke, B. Nickel, J. L. Arsuaga, I. Martínez, A. Gracia, J. María Bermúdez de Castro, E. Carbonell and S. Pääbo,
2014 A Mitochondrial Genome Sequence of a Hominin from Sima de los Huesos. *Nature* (in press).

Minc, L. D.,
1986 Scarcity and Survival: The Role of Oral Tradition in Mediating Subsistence Crises. *Journal of Anthropological Archaeology* 5(1), 39-113.

Olszewski, D. I. and H. L. Dibble (Eds.)
1993 *The Paleolithic Prehistory of the Zagros-Taurus*. University Museum Symposium Series 5, University Museum Monograph 83. Philadelphia: University of Pennsylvania.

Otte, M., F. Biglari, D. Flas, S., N. Zwyns, M. Mashkour, R. Naderi, A. Mohaseb, N. Hashemi, J. Darvish and V. Radu,
2007 The Aurignacian in the Zagros Region: New Research at Yafteh Cave, Lorestan, Iran. *Antiquity* 81(311), 82-96.

Otte, M., F. Biglari and J. Jaubert (Eds.)
2009 *Le Paléolithique d'Iran: Proceedings of the XV The World Congress UISPP*, Lisbon, 4-9 September 2006, Pp.125-140, (= BAR International Series S1968), Oxford: Archaeopress.

Otte, M. and J. K. Kozlowsk,
2007 *L'Aurignacien du Zagros*. Etudes et Recherches Archéologiques de l'Université de Liège (ERAUL) 118. Liège: Université de Liège.

Otte, M., S. Shidrang and D. Flas,
2012 *L'Aurignacien de la Grotte Yafteh (Fouilles 2005-08) et Son Contexte*. Etudes et Recherches Archéologiques de l'Université de Liège (ERAUL) 132. Liège: Université de Liège.

Pickering, T. R. and H. T. Bunn,
2012 Meat Foraging by Pleistocene African Hominins: Tracking Behavioral Evolution Beyond Baseline Inferences of Early Access to Carcasses. In: Domínguez-Rodrigo, M.(Ed.), *Stone Tools and Fossil Bones: Debates in the Archaeology of Human Origins*, Cambridge University Press, Cambridge, England, pp. 152-173.

Powell, A., S. J. Shennan and M. G. Thomas,
2010 Demography and Variation in the Accumulation of Culturally Inherited Skills." In: O'Brien, M.J., Shennan, S.J.(Eds.), *Innovation in Cultural Systems: Contributions from Evolutionary Anthropology*, Vienna Series in Theoretical Biology. MIT Press, Cambridge, MA, pp. 137-160.

Prüfer, K., F. Racimo, N. Patterson, F. Jay, S. Sankararaman, S. Sawyer, A. Heinze, G. Renaud, P. H. Sudmant, C. de Filippo, H. Li, S. Mallick, M. Dannemann, Q. Fu, M. Kircher, M. Kuhlwilm, M. Lachmann, M. Meyer, M. Ongyerth, M. Siebauer, C. Theunert, A. Tandon, P. Moorjani, J. Pickrell, J. C. Mullikin, S. H. Vohr, R. E. Green, I. Hellmann, P. L. F. Johnson, H. Blanche, H. Cann, J. O. Kitzman, J. Shendure, E. E. Eichler, E. S. Lein, T. E. Bakken, L. V. Golovanova, V. B. Doronichev, M. V. Shunkov, A. P. Derevianko, B. Viola, M. Slatkin, D. Reich, J. Kelso and S.Pääbo,
2014 The Complete Genome Sequence of a Neanderthal from the Altai Mountains. *Nature* 505(7481), 43-49.

Reich, D., R. E. Green, M. Kircher, J.Krause, N. Patterson, E. Y. Durand, B. Viola, A. W. Briggs, U. Stenzel, P. L. F. Johnson, T. Maricic, J. M. Good, T. Marques-Bonet, C. Alkan, Q. Fu, S. Mallick, H. Li, M. Meyer, E. E. Eichler, M. Stoneking, M. Richards, S. Talamo, M. V. Shunkov, A. P. Derevianko, J. J. Hublin, J. Kelso, M. Slatkin and S. Pääbo,
2010 Genetic History of an Archaic Hominin Group from Denisova Cave in Siberia. *Nature* 468(7327),1053-1060.

Ruff, C. B.,
1987 Sexual Dimorphism in Human Lower Limb Bone Structure: Relationship to Subsistence Strategy and Sexual Division of Labor. *Journal of Human Evolution* 16(5), 391-416.

Sahle, Y., W. K. Hutchings, D. R. Braun, J. C. Sealy, L. E. Morgan, A. Negash, B. Atnafu,
2013 Earliest Stone-Tipped Projectiles from the Ethiopian Rift Date to >279,000 Years Ago. PLoS One 8(11):e78092.doi:10.1371/journal.pone.0078092.

Semaw, S.,
2000 The World's Oldest Stone Artefacts from Gona, Ethiopia: Their Implications for Understanding Stone Technology and Patterns of Human Evolution Between 2.6-1.5 Million Years Ago. *Journal of Archaeological Science* 27(12), 1197-1214.

Shennan, S.,
2001 Demography and Cultural Innovation: A Model and its Implications for the Emergence of Modern Human Culture. *Cambridge Archaeological Journal* 11(1), 5-16.

Soffer, O.,
1994 Ancestral Lifeways in Eurasia: The Middle and Upper Paleolithic Records. In: Nitecki, M.H., & Nitecki, D.V.(Eds.), *Origins of Anatomically Modern Humans*, Plenum Press, New York, NY, pp. 101-119.

Speth, J. D.,
2012 Middle Paleolithic Subsistence in the Near East: Zooarchaeological Perspectives—Past, Present, and Future. *Before Farming* 2(1), 1-45.

2013 Thoughts About Hunting: Some Things We Know and Some Things We Don't Know. *Quaternary International* 297, 176-185.

Stiner, M. C. and S. L. Kuhn,
2009 Paleolithic Diet and the Division of Labor in Mediterranean Eurasia. In: Hublin, J.J. & Richards, M.P.(Eds.), *The Evolution of Hominin Diets: Integrating Approaches to the Study of Palaeolithic Subsistence*, Springer, New York, NY, pp. 157-169.

Straus, L. G.,
1989 On Early Hominid Use of Fire. *Current Anthropology* 30(4), 488-491.

Swisher, C. C., G. H. Curtis, T. Jacob, A. G. Getty, W. and A. Suprij,
1994 Age of the Earliest Known Hominids in Java, Indonesia. *Science* 263(5150), 1118-1121.

Tchernov, E.,
1988 The Age of 'Ubeidiya Formation (Jordan Valley, Israel) and the Earliest Hominids in the Levan. *Paléorient* 14(2), 63-65.

Thieme, H.,
1997 Lower Paleolithic Hunting Spears from Germany. *Nature* 385(6619), 807-810.

Vahdati Nasab, H.,
2011 Paleolithic Archaeology in Iran. *International Journal of Humanities* 18(2), 63-87.

Vahdati Nasab, H., G. A. Clark and S.Torkamandi,
2013 Late Pleistocene Dispersal Corridors Across the Iranian Plateau: A Case Study from Mirak, a Middle Paleolithic Site on the Northern Edge of the Iranian Central Desert (Dasht-e Kavir). *Quaternary International* 300, 267-281.

Wall, J. D., M. A. Yang, F. Jay, S. K. Kim, E. Y. Durand, L. S. Stevison, C. Gignoux, A. Woerner, M. F. Hammer and M. Slatkin,
2013 Higher Levels of Neanderthal Ancestry in East Asians than in Europeans. *Genetics* 194(1), 199-209.

Whallon, R. E.,
2011 An Introduction to Information and its Role in Hunter-Gatherer Bands. In: Whallon, R.E., Lovis, W.A. & Hitchcock, R.K.(Eds.), *Information and its Role in Hunter-Gatherer Bands*, University of California-Los Angeles, Cotsen Institute of Archaeology Press, Los Angeles, CA, pp.1-27.

Wobst, H. M.,
1974 "Boundary Conditions for Paleolithic Social Systems: A Simulation Approach." *American Antiquity* 39(2, Part 1), 147-178.

Wrangham, R. W.,
2009 *Catching Fire: How Cooking Made Us Human*. New York: Basic Books.

Zeder, M. A., D. G. Bradley, E. Emshwiller and B. D. Smith (Eds.)
2006 *Documenting Domestication: New Genetic and Archaeological Paradigms*. Berkeley: University of California Press.

چکیده ی مقالات به زبان فارسی

اهمیت داده‌های پارینه‌سنگی ایران در بازگشایی نکات کلیدی در تطور انسان

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خلاصه: ایران به حق برای شواهد باستان شناختی فوق العاده خود در دوره های مفرغ، آهن و ادوار فرهنگی سپسین شهره است، شواهدی که ایران را به یکی از مراکز اصلی آغاز تمدن ها در جهان تبدیل نموده است. با این حال و در مقام مقایسه، مدارک بسیار کمتری در مورد پارینه سنگی ایران که تقریبا دو میلیون سال قدمت داشته و بیش از ۹۹,۵ درصد از باستان شناسی کشور را شامل می‌شود دردست است. این نوشتار کوشش دارد تا کشفیات جدید در دیرین انسان شناسی، باستان شناسی و ژنتیک را که فهم ما در درک تاریخ انسان در اوراسیا را دگرگون ساخته اند، پررنگ سازد. تعجب آور نیست که در این میان بسیاری از این موارد کماکان در حال تغییرند و بسیاری از نکات و پرسش‌های مطروحه نیز بی‌پاسخ مانده‌اند. هدف از این مقاله نشان دادن توان بی‌بدیل و اهمیت داده نشده مدارک پارینه سنگی ایران در کمک به فهم بهتر این مرحله پویا و جذاب از زندگی بشر است.
واژگان کلیدی: ایران، خاورمیانه، پارینه‌سنگی، انسان راست قامت، نئاندرتال، پیدایش انسان مدرن

گسترش خلاقیت انسانی: مواد شناختی در مدارک باستان شنَاسیِ پارینه‌سنگی جدید

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خلاصه: انتقال از پارینه‌سنگی میانی به جدید (۴۰۰۰۰ سال پیش از حال) و در پی آن دوران پارینه‌سنگی جدید شاهد جهشی عمده در خلاقیت انسانی است. در این دوران در مقایسه با ادوار پیشین شاهد حضور به مراتب بیشتر اشیای هنری، جعبه ابزارهای پیچیده‌تر شده و شواهد افزایش در ظرفیت انسانی برای مناسک و باورها هستیم. در ارتباط با پیشرفت اشاره شده، شاید مهمترین تحول در تاریخ زیستی نوع بشر، گسترش گونه‌ی جدیدی از انسان به نام انسان هوشمندِ هوشمند که با نام انسان با رفتار مدرن نیز شناخته می‌شود است. در این مقاله تلاش شده تا با استفاده از یافته‌های باستان‌شناختی به جای مانده و همچنین یافته‌هایی که به صورت غیرمستقیم به این گسترش مربوط هستند همچون مناسک و آداب تدفین، بیانات هنری، تفکر نمادین، و در نهایت زبان ساختارمند به بحث پیرامون توانایی‌های شناختی برای رشد و توسعه در انسان هوشمندِ هوشمند پرداخته و در نتیجه خواهیم دید این نوآوری‌ها و پیامدهای آنها چه نقشی در انسان بودن داشته‌اند.
واژگان کلیدی: انسان هوشمندِهوشمند، انسان با رفتار مدرن، انتقال از پارینه‌سنگی میانی به جدید، شناخت انسانی، خلاقیت انسانی

آسیای مرکزی به مثابه یک ناحیه هسته‌ای: ایران به عنوان یک منشاء برای اوریناسی اروپا

مارسل اوت
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خلاصه: به تازگی تعداد قابل توجهی از محوطه‌های باستانیِ دارای مجموعه‌های اوریناسی در آسیای مرکزی و همچنین ایران کشف شده‌اند. پراکنش چنین محوطه‌هایی در عرض جغرافیایی یکسان در اروپا و شمال دریای سیاه، موید حرکت آشکار جوامع به سوی غرب از آسیا به اروپاست که با خود فناوری جدید را در حوالی ۴۰ هزار سال پیش به همراه بردند. از آنجایی که پس از این مهاجرت، هیچ گسستی در

مـدارک پیـش از تاریـخ اروپـا مشـاهده نمی‌شـود، می‌تـوان تمامـی ایـن جوامـع را نخسـتین هنـد و اروپاییانـی نامیـد کـه از شـمال هنـد تـا غربی‌تریـن مناطـق اروپـا پراکنـده شـدند.

واژگان کلیـدی: نخسـتین اروپاییـان، اوریناسـی آغازیـن، آسـیای مرکـزی، نخسـتین مهاجرت‌هـا، هنـد و اروپاییـان

منشـــاء انســـان مـــدرن: جلوآمدگـــی ناحیـــه ی میانـــی صـــورت، راهبـــرد ســـه بعـــدی

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خلاصـــه: نئاندرتال‌هـا در ناحیـه ی میانـی صـورت خـود خصایـص ریخت‌شناسـی ویـژه‌ای دارنـد کـه آنـان را بـا تمامـی غیـر نئاندرتال‌هـای هم‌عصرشـان و همچنیـن تمامـی انسـان ریخت‌ها متمایـز سـاخته اسـت. در انسـان نئاندرتـال اسـتخوان‌های نواحـی گونـه‌ای و فـک بـالا در مقایسـه بـا انسـان‌های مـدرن کشـیده‌تر شـده کـه در نتیجـه ناحیـه‌ی میانـی صـورت بـه گونـه‌ای جلوآمـده کـه در هیچیـک از انسـان‌های مـدرن دیـده نمی‌شـود. ایـن ویژگـی بـه نـام جلوآمدگـی ناحیـه‌ی میانـی صـورت شـناخته می‌شـود (MFP). کاسـته شـدن از میـزان جلوآمدگـی ناحیـه‌ی میانـی صـورت یکـی از نـکات کلیـدی در تمایـز بیـن نئاندرتال‌هـا و انسـان‌های مـدرن اسـت، تـا جایی‌کـه برخـی آن را یکـی از مهمتریـن بـروزات ریختـی "مـدرن شـدن" نامیده‌انـد. در ایـن پژوهـش میـزان تشـابه در ناحیـه‌ی میانـی صـورت انسـان ریخت‌هـای پلیئستوسـن جدیـد اروپـا شـامل نئاندرتال‌هـا و انسـان‌های پارینه‌سـنگی جدیـد سـنجیده شـده اسـت. بـرای سـنجش درجـه‌ی تشـابه در ناحیـه‌ی میانـی صـورت، روشـی نویـن بنـام آنالیـز سـه بعـدی ژئومتریـک مورفومتریـک (GM3DA) بـرای ایـن پژوهـش تدویـن گردیـد. نرم افـزار رایانـه‌ای، داده‌هـای خـام ریخت‌شناسـی را تبدیـل بـه منحنی‌هایـی نمـود کـه قابلیـت اسـتفاده‌ی آمـاری داشـته و از ایـن طریـق میـزان تشـابه و تفـاوت اندازه‌گیـری گردیـد. نتایـج اسـتفاده از ایـن روش حاکـی از اینـند کـه تفاوت‌هـای بـارزی در ناحیـه‌ی میانـی صـورت در نئاندرتال‌هـا و انسـان‌های پارینه‌سـنگی جدیـد مشـاهده می‌شـود. نتایـج همچنیـن نشـان داده‌انـد کـه نئاندرتال‌هـای اروپایـی حداقـل از جنبـه ریخت‌شناسـی ناحیـه‌ی میانـی صـورت، جامعـه‌ای منحصربه‌فـرد بوده‌انـد.

واژگان کلیـدی: آنالیـز سـه بعـدی ژئومتریـک مورفومتریـک، نئاندرتـال، ناحیـه‌ی میانـی صـورت، اروپـا، انسـان‌ریخت‌های پلیئستوسـن جدیـد

کاوش در ســـازه‌های شـــماره‌ی ۱ و ۲۰ در شهر ســـو خته

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خلاصـه: در ایـن مقالـه نتایج مقدماتـی کاوش در سـازه‌های شـماره‌ی ۱ و ۲۰ ارائـه می‌گـردد. سـازه‌ی شـماره‌ی ۱، بـزرگ و شـامل ده‌هـا اتاق/فضـا اسـت و مشـتمل بـر ۶ مرحلـه (مراحـل A–F) منتسـب بـه دوره‌هـای II و III شهرسـوخته اسـت. مرحلـه‌ی A قدیمی‌تریـن بـوده و بیشـتر سـاختارهای ایـن مرحلـه شـامل اتاق‌هـای ذخیره‌سـازی همـراه بـا مهرهـا، اثـر مهـر و دیگـر اشـیای اداری اسـت. مرحلـه‌ی B بـه خوبـی ثبـت نگردیـده، هرچنـد تغییراتـی در خصـوص کاربـری در آن مشـاهده می‌شـود. مرحلـه‌ی C تـا حـدودی مشـابه مرحلـه‌ی قبلـی اسـت. در مرحلـه‌ی D سـازه بـه سـاختاری بـزرگ مبـدل گشـته کـه شـاید متاثـر از رشـد پیچیدگـی بیشـتر در سیسـتان بـوده باشـد. ورودی‌هـای اصلـی در قسـمت جنوبـی قـرار داشـته، فضاهـای زیسـتی در مرکـز و فضاهـای ذخیره‌سـازی در لبه‌هـای شـرقی و غربـی قـرار گرفته‌انـد. حـدود ۵۰ فضـا در مرحلـه‌ی E مـورد کاوش قـرار گرفتنـد، ولـی بخـش اصلـی ایـن سـاختار مشـتمل بـر ۱۰ اتـاق اسـت. مرحلـه‌ی F آخریـن مرحلـه‌ی اسـتقراری پیـش از تـرک محوطـه بـوده اسـت. سـازه‌ی

شماره‌ی ۲۰ در شمال غرب سازه‌ی شماره‌ی ۱ واقع شده است. کاوش به مدت ۲۵ روز به طول انجامید و به اتمام نرسید. سازه‌ی شماره‌ی ۲۰ دارای ۱۲ فضا به صورت شمالی جنوبی است که از خشت ساخته شده‌اند. اتاق‌ها با زاویه مستقیم نسبت به هم قرار داشته و دیوارها تقریبا ۷۰ تا ۸۰ سانتی متر ضخامت دارند. ورودی‌های اصلی این سازه عموما با دو لایه از اندود سفید و قرمز پوشیده شده‌اند. دو اجاق بزرگ پر از مقادیر زیاد خاکستر و زغال از فضاهای ۴ و ۵ به دست آمدند. قسمت خارجی اجاق ها با اندود رُسی پوشیده شده است. بر اساس مواد اندک فرهنگی به دست آمده که بیشتر قطعات سفال هستند، این سازه مربوط به دوره IV است.

واژگان کلیدی: شهرسوخته، اجاق، سازه های شماره ۱ و ۲۰، تخصص گرایی

آیا خالدی خدای آتش پیروز در نزد اورارتوییان بوده است؟

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خلاصه: آتش جایگاهی مشخص در نزد اقوام باستانی داشته و نزد آنان از احترام و قداست برخوردار بوده است. جایگاه تقدیس شده‌ی آتش در نزد اقوام مختلف باستانی تا حدود زیادی مشخص گردیده، با این وجود این مهم کمتر در نزد اورارتوییان شناخته شده است. عموماً در نزد اقوام باستانی الاهه‌ای به نام خدای آتش وجود داشته که در مورد اورارتوییان چنین نبوده است. این مسئله از این نظر غیرمعمول می‌نماید که قاعدتاً آتش می‌بایست در محیط سردی که اورارتوییان در آن زندگی می‌نمودند از اهمیت ویژه‌ای برخوردار بوده باشد. هیچ ردی از اهمیت آتش و یا الاهه‌ای در این مورد در متون سلطنتی اورارتو دیده نمی‌شود، با این وجود می‌توان تاحدودی کاربرد الاهه‌ی آتش را در متون اورارتویی در رابطه با مهمترین خدای اورارتو، خالدی ردیابی نمود. این نوشتار در پی آن است تا با استفاده از شواهدی همچون نمایش خالدی بر روی یک سپر از محوطه‌ی باستانی انزاف و آتشدان‌های محوطه آیانیس، نشان دهد که آتش برای خالدی برپای گردیده بوده و می‌توان از آن بعنوان "آتش پیروز" یاد نمود. همچنین خالدی خود می‌توانسته به عنوان الاهه‌ی آتش در نظر گرفته شود جایی‌که ویژگی‌های آتش پیروز را دارا بوده: همواره سوختن، ارتباط با خدای پیروزی، سوختن در معابد و حتی شاید هم نیاز به قربانی و نذورات.

واژگان کلیدی: الاهه‌ی آتش، خالدی، خدای پیروزی، اورارتوییان

آخرین زن فرمانروا در ایرانشهر: ملکه آذرمیدخت

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خلاصه: ملکه آذرمیدخت، آخرین ملکه از سلسله ساسانیان بوده که در خلال صده‌ی هفتم میلادی بر ایرانشهر حکمرانی می‌کرده است. در این نوشتار برآنیم تا با مرور زندگی و تصمیماتی که از جانب وی اخذ شد خاطره‌ی پدرش خسرو دوم (خسرو پرویز) را احیا نماییم. یکی از اعمال آذرمیدخت ضرب سکه با تصویر پدرش و نام خود بوده است. در این نوشتار در مورد این حرکت وی فرضیه‌ای جدید ارائه گردیده است. این مقاله نتیجه می‌گیرد که در پس ترور آذرمیدخت، نجیب زادگان اشکانی همچون اسپهبد فرخ هرمزد و پسرش رستم فرخزادان قرار داشته‌اند.

واژگان کلیدی: امپراتوری ساسانی، سکه شناسی ساسانی، ملکه آذرمیدخت، خسروپرویز، اسپهبد فرخ هرمزد، رستم فرخزادان، فرامانروای زن ایران