

Modern Origins: A North African Perspective

Jean-Jacques Hublin and Shannon P. McPherron (eds.)

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Africa has the longest archaeological record on the planet and a great part of it concerns human evolution. That makes this region one of the most attractive to research, which resulted in its intensive survey and excavation over the last 150 years. One hot issue is the emergence of anatomically modern humans and Northern Africa has evidence that seems to be key for the understanding of such a topic. For decades, research in Northern Africa was aimed at the construction of key sequences that would fit into time and space the natural and cultural phenomena. With the emergence of absolute dating, this approach lost importance and science become more interested in issues such as ecology, adaptation, and behavior which, in turn, led to an increase in multi- and interdisciplinary studies. The result was a clearer image of the past, even if that often means more confusing and even apparently contradictory results.

From the second half of the 19th century, Northern African research was conducted by European teams because France, Italy, and England controlled those territories. From 1940's to 1960's, these countries become free and research almost stopped, causing a divide between the historical-culturalist and processualist perspectives. After the 1990's, research in Northern African gained a new thrust, with well-funded multidisciplinary teams using up-to-date technologies that were specifically targeting the emergence of modern humans. That brought this region back into the spotlight. This new set of high-resolution data led McPherron and Hublin, both from the Department of Human Evolution of the Max Planck Institute (Germany) to host, in 2007, a conference called *Modern Origins: A North African Perspective* with 33 researchers with recent and relevant interdisciplinary research in North Africa. That also became the name of the book here under review.

The Max Planck Institute for Evolutionary Anthropology is a multi-department research center, founded in 1997, with the objective of investigating the history of humankind using a multi- and inter-disciplinary approach. Shannon McPherron is a Paleolithic lithic expert who received his PhD in 1991 from the University of Pennsylvania. He has been working in France, Morocco, and Ethiopia. Jean-Jacques Hublin received his Ph.D. in 1978 from the University of Paris VI. His work focuses on Northern Africa, Spain, Ethiopia, and France. The research of both these experts mainly concentrates on the transition from pre-modern humans to anatomically modern humans.

This edited book, *Modern Origins: A North African Perspective*, has 15 chapters divided into three parts—Paleoenvironment and Chronology (six chapters); Archaeology (five chapters); and The Fossil Hominins (four chapters). The preface gives very detailed information about the objectives of the conference, of the volume, and of the presently big picture of climate, biology, archaeology, chronology, and subsistence. It also points to some gaps that remain in research. Most of the papers are very didactic about the method and the relevance of the data approached. The first two chapters reconstruct the paleoclimate using deep-sea cores. Marine deposits are very important for such reconstruction because they have high-resolution, can be studied in several aspects such as sediment, chemistry, isotopes, pollen, etc., and can be dated. Studies about oceanic deposition of Sahara dust are mandatory because Africa responded to colder periods with aridity in contrast to Europe which responded with the formation of ice-sheets. Moreno (Chapter 1) focuses on the NW sector in the last ~250 ka, using three cores (GeoB 5559-2, GeoB4216-1, and MD95-2043), the SeaWiFS project satellite images, and the data from the Greenland GISP2. She identifies similar signatures between NW Africa and Greenland during the Dansgaard-Oeschger stadials, a correlation between the low latitude atmospheric system and these stadials, and an influence of the orbital cycles in the dust input and upwelling. Larrasoana (Chapter 2) has a similar approach for the NE African coast using Site 967. He recognizes nine episodes of low dust deposition between 330 and 80 ka that are related to the penetration of insolation, consequent higher rainfall rates, and subtropical savannah vegetation. Smith (Chapter 3) approaches the inland water masses during the Pleistocene using sedimentological and geochemical analysis of fluvial, lacustrine, and spring sediments from Eastern, Central, and Western Northern Africa. She infers the extent and changes of the lakes (from small to enormous), their salinity (from freshwater to brackish), that the Western sector had different climatic variations than the Central and Eastern ones, which can be related to Atlantic and Mediterranean rainfall, respectively. Geraads (Chapter 4) approaches the mammalian assemblages using the proportions of open country antelopes and of gerbillids; this as a control for the eventual distortion caused by human hunting preferences. He infers that the second half of the Middle Pleistocene was more humid and/or forested than before, but that the western sector remained open or arid. However, the zoo-

archaeological record points to the existence of conditions that would allow a permanent human settlement. Richter, Moser, and Nami (Chapter 5) approach Ifri n'Amman (Morocco), a long human occupation sequence site with an alternating presence of the Mousterian and Aterian. With the combination of TL and U-series/ESR dates they show that Maghrebine Middle Paleolithic is at least older than 160 ka and the Aterian more than 130 ka, both out of radiocarbon range. Based on this sequence, the authors suggest that the Aterian should be considered a Northern African facies of the Mousterian and not a technocomplex. Raynal and Occhietti (Chapter 6) successfully dated Moroccan archaeological layers using amino chronology attributed to the Aterian and confirm that they fall beyond the ^{14}C limit. Amino acid chronology is important because, among other advantages, it allows verification of the chronological homogeneity of the archaeological assemblages and the selection of suitable samples for radiocarbon dating. With their study, the authors suggest amino acid zones using whole shell protein from continental gastropods.

Bouzouggar and Barton (Chapter 7) open the section about archaeology, which is mostly focused on the Aterian. They criticize the disproportion given to pedunculated and other lithic tools in the Aterian assemblages. They propose that these tools might be related to the use of blades and suggest that not only the Aterian but also the technocomplex prior to the Aterian should be investigated in order to obtain a correct picture of the essence of the Aterian itself. Steele (Chapter 8) does a zooarchaeological study using five sites from Morocco and one from Libya. She was able to show that not only big game, but also small game, including seafood, was part of the subsistence of modern humans. She also noted a similar pattern between Northern and Southern Africa, where taxa of open landscapes grazers are more abundant during colder and dry phases, while those adapted to closed landscapes are more abundant during the warmer and wetter periods. Garcea (Chapter 9) uses data from Libya to point to the Aterian as a modern human adaptation to the desert because the sites are located in the inland, mountains, and coast but not in the Nile Valley, and also because Aterian distribution has an inversely proportional relationship between altitude and latitude from the central Sahara mountains to the Mediterranean Coast. Moreover, the lithic analysis indicates that Aterian tools were not used only as projectiles.

Aouadi-Abdeljaouad and Belhouchet (Chapter 10) present old sites along with Ain El-Guettar (with fauna, charcoal, and lithics from Mousterian and Aterian levels) and Ain Oum Henda 2 (with lithics including tanged pieces, but no fauna). Again, the Aterian corresponds to hyper-arid periods, but the chronology and stratigraphic position of the "Proto-Aterian" indicates that it is contemporaneous with the Mousterian. Because the Mekkassy Basin had wadis and springs throughout the Pleistocene, it is a preferred area for research. Hawkins (Chapter 11) presents the Aterian use of the Western Desert of Egypt to defend the possibility of the Aterian being an adaptation to dry landscapes with more mobile and less predictable resources in contrast

to the Mousterian which would be based on the non (or not as much)-mobile and more predictable resources during wetter times. More and less mobility seems to have an influence on the way people managed not only the lithic raw materials but also their lithic blanks and tools.

Harvati and Hublin (Chapter 12) open the Physical Anthropology section by analyzing Pleistocene hominins using 3D geometric morphometrics. They show that fossils associated with the Aterian and Mousterian are different from those related to the Iberomaurusian which, in turn, are more similar to those from the European Upper Paleolithic. They point to a possible regional continuity in northern African populations, and an evolutionary discontinuity between the Aterian and later Iberomaurusian populations, which could correspond to the large chronological gap between these populations. Hublin and colleagues (Chapter 13) study the dental assemblages associated with the Moroccan Aterian, dated from 90–35 ka. They show that these fossils are modern humans despite their megadontia features and thick enamel, characteristics interpreted as reminiscent of both Near East Middle Paleolithic modern humans and northern and eastern African *Homo sapiens*. At the same time, northern African modern humans are different from those from Eurasia or South Africa, but similar to the oldest found in Europe which suggests a link between these two regions. Crevecoeur (Chapter 14) studies the human remains from Nazlet Khater 2, found in association with a flint mining site dated to 35–40 ka. The fossil exhibits archaic features and the postcranial section shows an adaptation to high biomechanical strength and specialized activities. Results suggest that past modern human variation may differ from the present and that recent populations could represent a restricted part of the diversity of past modern human genetics. Braüer (Chapter 15) focuses on Middle Pleistocene human diversity. He defends the idea that the last speciation occurred at 0.8–0.7 Ma when *Homo erectus* gave rise to a new species that encompasses modern features and, therefore, should be designated *Homo sapiens (sensu lato)*. He points out the fact that the fossil record favors a continuous, mosaic-like Middle Pleistocene evolutionary lineage without any speciation events. Therefore, the entities *Homo heidelbergensis*, *helmei*, and *sapiens*, should be considered as grades within this species.

With time, studies on evolutionary subjects and large territories tend to become dispersed. Therefore, monographic tomes are fundamental, not so much because of the new information that they eventually might hold, but most of all because they usually present detailed summaries of the research history and set new directions of investigation. This book is one of these cases. The rich bibliographic references allow both senior and junior researchers to be widely informed about the investigations in several research fields. This aspect along with the problems raised in the discussions makes it an important volume for all those who work on northern Atlantic paleoenvironment, African Paleolithic, African paleolandscapes, evolution, adaptation, emergence of modern humans and behavior, and dispersal of modern humans and their behavior or Out-of-Africa.

Overall, the authors seem to agree that northern Africa is a key region for the understanding of the emergence of anatomically modern humans and the Out-of-Africa movement that occurred ~60–50 ka; with the existence of fluctuations between a “green Sahara” and hyperarid phases, being the non-Aterian occupations associated with the first and the Aterian ones with the second; with the fact that both the Maghrebine Mousterian and the Aterian are much older than was thought before (≥ 160 ka and ≥ 130 ka, respectively); and, that these two entities that were previously thought to be different and sequential technocomplexes are, in fact, alternating through time.

The volume is clearly in the Max Plank Institute spirit, with a multi-disciplinary and high technology approach. The information is given with the support of many images, pictures, drawings, and graphics that are large and have high-resolution. As it is shown in the first and third sections, research presently uses high-resolution techniques that, in turn, result in increasingly accurate data. This rich amount of information is absolutely essential for the creation of accurate images of the environment and landscape that will allow correct framing of the reasons behind human technology, behavior, adaptation, and evolution. Being of general consensus that such subjects are not closed boxes, it can be pointed out that some chapters exceed the restricted regional and temporal scopes of the book, which results in some incoherence.

In contrast to such efforts towards accuracy, the second section is considerably weaker. The authors show the difficulties in the interpretation of the lithic assemblages and struggle with the presence or absence of Aterian artifacts. If that is understandable in the case of old assemblages, which are repeatedly pointed to as biased and coming from less precise excavations, it is not understandable for new, well-excavated sites. Strangely, despite the fact that all the papers were peer-reviewed, there are several basic errors in the use of the technological (and not only typological) systematics. This is an ongoing problem with African re-

search that can have dramatic consequences. Also, none of the chapters present a table with a top line showing the raw materials and a left column with a complete list of the technological categories, including chips. None publishes images or results of refitting. It is widely known that the amounts of chips and of refittings are important clues to infer taphonomy and preservation in the archaeological layers. Refitting also would be fundamental in understanding patterns of lithic technology and reduction sequences. The studies on lithics only refer occasionally to the raw materials from which the artifacts were made and none has a map with the location of both sites and sources of those raw material.

This unbalance between the studies done on material culture and the ones on subjects more related to nature gives a wrong image about the true importance of artifacts in the investigation of the human past. Such investigations cannot relinquish material culture. To the contrary, it has to put increasing attention to this subject and train more researchers. Otherwise human past investigation will become a high definition widescreen, showing amazing detailed landscapes, where people are not only unwelcome but most of all deliberately removed in order to not mess up those so perfect scenarios, unless they appear as only as skeletons. Material culture is not as straightforward as natural sciences. It represents a mix of culture, adaptation, and function, not being always clear when the assemblages represent each one of these cases. The challenge of archaeologists and anthropologists is hard and aims to infer meaning and how humans managed to survive in those different scenarios. That is why “...archeology is still the most fun you can have with your pants on.” (Flannery 1982: 278).

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