Archeological Issues in the Middle and Upper Paleolithic of the Levant and Its Neighboring Regions

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Abstract

This chapter gives an introduction to the present volume, which presents overviews of the archeological data on the replacement of Neanderthals by modern humans in the Levant and its neighboring regions. The first part focuses on recent evidence from the Levant, the second part on the neighboring regions of the Caucasus, the Zagros, and South Asia. A total of 13 papers in this volume highlight the distinct nature of the cultural occurrences over the Middle and Upper Paleolithic periods of the Levant: they display a continuity and a mosaic of different lithic industries. This feature, hardly documented in the other regions discussed in this volume, reinforces the importance of the Levant as a special region in interpreting the RNMH phenomenon in West Asia.

Keywords

Neanderthals • Modern humans • Cultural interaction • Tabun model • Middle–Upper Paleolithic transition

1.1 Introduction

Studies of the replacement of Neanderthals by modern humans (RNMH) inevitably require an interdisciplinary research framework involving many disciplines, including archeology, physical anthropology, genetic anthropology, environmental sciences, and population biology, to mention but a few. The seven years since the launching of the RNMH research project have been enough to see a rapid increase in influential findings from these disciplines, notably from ancient genetic studies which represent one of the most rapidly developing research fields. Their overwhelming contributions include predictions of the timing of "Out-of-Africa" and the subsequent diversification of the modern human population groups in Eurasia (e.g. Fu et al. 2016; Malaspinas et al. 2016; Mallick et al. 2016; Pagani et al. 2016), the rates and timing of interbreeding between Neanderthals and modern humans (e.g. Viola and Pääbo 2013; Prüfer et al. 2014; Kuhlwilm et al. 2016), and the definition of a new indigenous hominin type in Paleolithic Eurasia, the Denisovans, whose morphological traits have not yet been fully defined with fossil records, and their interbreeding with the other hominins (e.g. Sawyer et al. 2015; Sankararaman et al. 2016; Slon et al. 2017). There have also been important findings in the fields of archeology. The discovery of different cultural traditions in the Middle Paleolithic of Central Asia, where Neanderthals and Denisovans have been identified in restricted geographic and chronological contexts, poses questions about possible cultural interactions between different hominin groups (Derevianko et al. 2013). In addition, the recognition of many of the behavioral traits long thought to be specific to modern humans within the archeological records of the Neanderthals has considerably blurred the

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behavioral distinction between those two populations (see Villa and Roebroeks 2014).

A consequence of these rapidly increasing findings is to encourage archeologists to recognize the replacement processes as being more complicated than previously thought, certainly rejecting a straightforward "replacement" model of one by the other. As interbreeding is suggested by genetic studies, cultural interactions should also be taken into consideration in identifying these processes with archeological data. Further, the possibility of regionally varied replacement processes, and hence region-specific mechanisms behind the replacement in each region, also needs to be taken into consideration. Accordingly, archeological research in this subject today requires more refined perspectives grounded in the interpretation of higher resolution data obtained through more rigorously controlled field methodology.

The archeology sessions at the RNMH2014 conference were organized on the basis of this recognition to survey the latest field information on the replacement processes across Eurasia. While the conference focused on verifying the "learning hypothesis" as an explanatory model for the replacement, it also aimed to collect fact-based reports from fieldwork, essential to test any theoretical hypothesis. The present volume is thus a compilation of selected papers from the sessions concerning the RNMH in the Levant and its neighboring regions, supplemented by a couple of non-participant contributions.

1.2 The Archeological Issues of the RNMH in the Levant

Situated at the junction of Africa, Europe, and Asia, the Levant has been recognized as a unique region in the RNMH research, displaying a set of evidence unseen in the other regions. Even in the early decades of the research history in the twentieth century, debates were sparked by the discovery of evidence of modern humans and Neanderthals in association with the Middle Paleolithic stone assemblages at the Mount Carmel sites in Israel (Garrod and Bate 1937; McCown and Keith 1939). Likewise, the occurrences of elongated blade elements, then thought to be a hallmark of the Upper Paleolithic, in Middle or even earlier Paleolithic contexts at Tabun Cave (Garrod and Bate 1937), Israel, and Yabrud (Rust 1950), Syria, puzzled Paleolithic archeologists (Bordes 1960). Furthermore, the curious mixture of Middle and Upper Paleolithic techno-typological traits in the lithic assemblages from Ksar Akil (Ewing 1947) and Abou Halka (Haller 1942–1943) in Lebanon also attracted much attention as they suggested transitions over these critical periods (Garrod 1951, 1955; for the research history see Marks and Rose 2014; Leder 2014).

One of the most significant breakthroughs in the pursuit of the replacement processes in the Levant is probably the introduction of developed radiometric dating methods for the key fossil and lithic remains in the 1980s. Those techniques, including thermo-luminescence (TL), electron spin resonance (ESR), and optically stimulated luminescence (OSL), placed the then-known early modern human fossils of Qafzeh (Valladas et al. 1988) and Skhul (Grün et al. 2005) bracketed in the MIS 5, ca. 120 to 90 ka, and the Neanderthal remains from Kebara Cave (Valladas et al. 1987) and Amud (Valladas et al. 1999; Rink et al. 2001) in the period ca. 70 to 50 ka, in the MIS 4 to 3. Given the existence of anatomically modern human fossils in the Initial Upper Paleolithic (IUP) in MIS3 (Bergman and Stringer 1989; also see Güleç et al. 2007), the chronological relationships suggested alternate occupations of the Levant by two groups of human populations, having turned each other over in different time periods (Shea 2008). This view apparently matched the chronological model proposed in the 1970s to 1980s for lithic assemblages, which surmised the successive occurrences of three different Levantine Mousterian industries, each defined as Tabun D-, C-, and B-type according to the long Middle Paleolithic stratigraphic sequence (Copeland 1975, 1981; Bar-Yosef 2000, 2002): associations were assumed between Tabun C and modern humans, and Tabun B and Neanderthals.

In the last decade, this sequential or turnover model has come to be reviewed by new discoveries and reanalyses of the extant finds. While the discovery of Neanderthal remains from Ein Qashish, OSL dated to 70 and 60 ka (Been et al. 2017), and the confirmation of the association between Neanderthal fossils and Tabun-B type lithic assemblages at Dederiyeh Cave, Syria (Nishiaki et al. 2012) has provided a supporting view, the discovery of an ostensibly modern human skull, with an U/Th date of 55 ka, at Manot Cave challenged this simple view (Hershkovitz et al. 2015). Moreover, morphological reevaluation of the fossil records of the Middle Paleolithic has suggested a large anatomical diversity within each group of fossils, casting doubt on the distinction even between the two hominin groups: "in place of the Neanderthal versus modern human model frequently proposed, the idea of a more complicated situation in the Levant cannot be rejected" (Tillier and Arensburg 2017).

The simple turnover model can also be reconsidered with new archeological evidence. Significant in this regard is the availability of more lithic evidence from the inland Levant today. Recent fieldwork in the Syro–Arabian Desert has revealed the distribution of Middle Paleolithic lithic assemblages unassignable to any of the three Tabun type-industries, for example, flake assemblages with bifacial foliates and those with the Nubian Levallois of methods (e.g. Armitage et al. 2011; Rose et al. 2011; Usik et al. 2013). Their techno-morphological features, almost identical with those of the

Middle Stone Age complexes, point to the existence of populations in the Arabian Peninsula closely linked with modern humans of northeast Africa. The reports of comparable materials from the Sinai Peninsula (Goder-Goldberger et al. 2016) suggest that those populations might have had cultural interactions with the Tabun groups in the Levant, just north of the desert (Rose and Marks 2014).

Understanding of the lithic industrial changes in the coastal region of the Levant also needs to be further defined in relation to the Tabun model. At the late Middle Paleolithic site of the Kebara Cave, which is often regarded as a typical Tabun B-type site, lithic assemblages with perfect Tabun B-type features appeared in the earlier layers, and those from the upper layers yielded assemblages with Levallois flakes produced from radially prepared cores (Meignen and Bar-Yosef 1992). A similar contrast has been also reported in the late Middle Paleolithic sequence of the Dederiyeh Cave, consisting of two phases: the occurrence of typical Tabun B assemblages was identified in its earlier phase, and it was overlain by assemblages with ad hoc flake and blade tools produced from unidirectionally flaked Levallois cores but with few short broad-based Levallois points of the Tabun B type (Nishiaki et al. 2012).

1.3 The Levantine Middle and Upper Paleolithic

Given the existence of modern humans and Neanderthals in the Middle Paleolithic of the Levant, major questions posited in this context for archeology may include the following: how archeological evidence can be used to define the population dynamics in the Middle Paleolithic, whether the evidence reflects the co-existence or turnover of different population (hominin) groups, and whether the Neanderthal cultures contributed to the formation of modern human cultures in the Upper Paleolithic of the Levant. Since the present volume is composed primarily of papers presented at the RNMH2014 conference, it does not fully cover all the related issues. Nevertheless, the papers presented in two parts contribute to our better understanding of these archeological issues from original perspectives.

Part I deals with archeological issues in the Middle Paleolithic (Chaps. 2, 3, 4 and 5) and the Initial/Early Upper Paleolithic (Chaps. 6, 7 and 8) of the Levant. As noted above, the widely accepted chronological model for the Levantine Middle Paleolithic presumes three phases: the early, middle, and late phases, each represented by the Tabun D-, C-, and B-type industries of the Levantine Mousterian, thought to correspond to the MIS 7 to 6 (ca. 250 ka to 130 ka), MIS 5 (130 ka to 75 ka), and MIS 4 to 3 (75 ka to 45 ka) respectively (e.g. Shea 2008, 2013). Chapter 2 reports on the discovery of a distinct lithic industry at the open-air site of Nesher Ramla, situated in the karstic environments of south Israel, OSL dated to ca. 160 ka to 120 ka. Contrary to the expectation of the presence of a blade-rich industry of the Tabun D-type in this period, the recovered lithic assemblages exhibit the dominant production of Levallois flakes, reminiscent of the Tabun C- or B-types. Moreover, the assemblages exhibited the frequent production of naturally backed flake-knives and the common practice of recycling side-scrapers by resharpening the edges with systematic lateral spall removal unknown in the other Levantine assemblages to date. The authors of this chapter interpreted these unique elements as "part of the cultural package of the Nesher Ramla hominins previously unknown."

Unique lithic evidence from the late Middle Paleolithic context is the subject of Chap. 3. The open-air site of Nahal Mahanyeem Outlet (NMO) on the banks of the Upper Jordan River, OSL dated to 60 ka, is considered a short-term late Middle Paleolithic occupation camp for hunting and butchering. Unlike many of the cave and rockshelter sites, where archeological data are available only in the form of palimpsests or as the sum of residues derived from an unknown number of activity floors, the floor records at NMO were regarded as representing uniquely high-resolution data from a very short-term activity of late Middle Paleolithic hominins. Careful technological study, based on refitted pieces, revealed the practice of platform abrasion for the production of elongated blanks, a technique rather reminiscent of the Upper Paleolithic. Together with the abundant occurrence of elongated points instead of the broad-based Levallois points of the Tabun B-type, the NMO assemblages can be regarded as displaying part of the cultural diversity during the late Middle Paleolithic of the southern Levant.

Chapter 4 also deals with the late Middle Paleolithic. As mentioned earlier, Manot Cave is of great interest because it yielded a modern human fossil, U/Th dated to 55 ka, whose chronological and geographical positions wholly overlap those of the Neanderthals in the Levant. While the Middle Paleolithic lithics that might have been associated with this fossil are only available from the Upper Paleolithic layers, this chapter reports an interesting lithic artifact in those derived assemblages. It is a Levallois core with engravings made by sharp tools on its cortical back, most likely on purpose. The best parallels are known from Qafzeh Cave (Hovers et al. 1997) and Quneitra (Marshack 1996), Israel, the former of which was recovered with modern human fossils. Although contextual data is absent to establish the association of this important artifact with the modern humans at Manot Cave, this engraved core suggests that the practice of symbolic behavior was not uncommon in the Levantine Middle Paleolithic.

The behavioral diversity of the Middle Paleolithic hominins can be defined with a variety of archeological records. Chapter 5 refers to the possible flint mining activities in the

Middle Paleolithic of the Levant. The abundant reports of lithic raw material quarrying sites through pit digging in the Middle Stone Age of the Lower Nile valley of North Africa (e.g. Vermeersch et al. 1995) suggest comparable practices in the Levant. One such candidate is the series of open-air sites in Mount Carmel, where Middle Paleolithic lithic artifacts occur among heaps of abundant limestone rocks originally interpreted as having been extracted to obtain flints embedded in-between. A critical evaluation in this chapter concludes, however, that these rocks were residues of limestone quarrying to obtain building materials in the historical period, irrelevant to the Middle Paleolithic. Considering that Middle Paleolithic flint mining sites, at least for surface quarrying, have been reported from other sites as well (Finkel et al. 2016), the practice of flint quarrying itself in the Levant would not be rejected. This chapter suggests a more cautious approach toward the interpretation of such records.

The next three chapters (Chaps. 6, 7, and 8) look at the cultural dynamics of the Levantine Upper Paleolithic. The earliest IUP assemblages are defined with a series of distinct techno-typological elements (Kuhn 2003), including chamfered pieces and Emireh points as two *fossiles directeurs* of this period, whose spatio-temporal distribution is discussed in Chap. 6. Their different geographic distribution pattern was known already in the 1950s: chamfered pieces were more commonly discovered in the northern Levant, and Emireh points more in the south (Garrod 1962). This pattern can now be examined with a much larger data set and demonstrates the unique position of the central Levant, where IUP sites with both types are concentrated, the Keoue Cave being one such site in Lebanon. Further, this chapter points out a temporal pattern as well: Emireh points were popular earlier, and chamfered pieces later, manufactured even after the disappearance of Emireh points. These patterns seem to correlate well with the current general consensus that the IUP developed earlier in the south, and then expanded to toward the north.

The next cultural entity appearing in the Levant is the Early Ahmarian, a fully developed Upper Paleolithic industry with the established use of the volumetric concept of cores for bladelet production and the common manufacturing of backed bladelets. These features are not fully seen in the IUP, which still contains Middle Paleolithic elements like Levallois core reduction and Levallois points. The traditional view that the Early Ahmarian originated from the local IUP of the Levant is reviewed in Chap. 7, with a conclusion that "it is impossible to tie in the origins of the Ahmarian directly with any of the known IUP variants in the Near East." The processes of the emergence of the full-fledged Upper Paleolithic in the Levant are thus yet to be determined. In fact, the possibility has even been suggested that the Proto-Aurignacian of southeast Europe, which shares a number of techno-typological features with the Early Ahmarian, might have emerged earlier than the Ahmarian (Kadowaki et al. 2015). The development processes of Early Ahmarian also constitute a matter of further study. With reference to the new data from the Wadi Kharar 16R site, the middle Euphrates of Syria, Chap. 8 argues that the Early Ahmarian of the northern Levant exhibits a mixture of techno-typological elements of Early Ahmarian proper and Levantine Aurignacian. As with its initial stages, discussed in the previous chapter, the emerging regional variability in the Early Ahmarian also appears to have been a complex phenomenon which might have involved contacts with different cultural groups.

1.4 The Middle and Upper Paleolithic of the Caucasus, the Zagros, and South Asia

In Part II of this volume we turn our attention to the neighboring regions of the Levant, i.e., the Caucasus, the Zagros, South Asia, and further. As in Part I, the main concern is when and how the Upper Paleolithic started. However, the chapters here tend to consider the possibility of external as well as internal origins, acknowledging that the Upper Paleolithic emerged earlier in the Levant than elsewhere in West Asia.

The overview starts in Chap. 9 by providing the latest data from the Caucasus. In spite of the rapid increase in the number of field investigations, mainly in Georgia and Armenia, no IUP assemblages have ever been reported from the Caucasus. In this regard, the Upper Paleolithic site of Aghitu-3 Cave, Armenia, is an invaluable source of information as the site with the oldest radiometric dates in the region, ca. 39 ka. The associated lithic assemblages no doubt represent a fully developed UP industry, comparable to Early Ahmarian, characterized by bladelet production with volumetric cores and the manufacturing of baked bladelets. What is emphasized in this chapter is the complete lack of any link between this earliest UP and local Middle Paleolithic industries, suggesting a rather abrupt replacement of the Middle by the Upper Paleolithic in the Caucasus. This chapter also points outs an intriguing pattern in the regional distribution of lithic industries over these periods. The industrial contrast seen between the northern and the southern Caucasus during the Middle Paleolithic disappeared in the Upper Paleolithic, when a single bladelet industry was widely distributed across the mountains. The authors of this chapter suggest a rapid and widespread dispersal of modern humans and the development of a new social network in the Upper Paleolithic, probably arising from a far more mobile settlement pattern than before.

Chapters 10 and 11 are concerned with evidence from the Zagros, where some authors suggest an industrial continuity between the Middle and the Upper Paleolithic, although

admittedly with some reservations (see Olszewski and Dibble 1994, 2006; Olszewski 2007). Moreover, even suggestions on a link between the European Aurignacian and the Zagros Upper Paleolithic have also been presented (Otte and Kozlowski 2009). A critical review of the archeological records from relevant sites including Warwasi and Yafteh Caves is provided in Chap. 10. The conclusion is that the available evidence is insufficient to verify the Middle–Upper Paleolithic continuity in the Zagros, and this chapter suggests two alternative interpretations of the admixture of Middle and Upper Paleolithic elements at certain sites like Warwasi: a stratigraphic or taphonomic mixing, and the possibility of its indicating visits by different human populations to the same site at short intervals. As a matter of fact, the admixture of Middle and Upper Paleolithic elements in the Zagros Upper Paleolithic is seen in the form of the presence of Middle and Upper Paleolithic-type artifacts in the same assemblages, while in the Levant they are seen on the same artifacts, for example, the manufacturing of Upper Paleolithic-type tools on Middle Paleolithic-type blanks, which has not been documented in the Zagros.

The next chapter, Chap. 11, investigates behavioral characteristics of the Upper Paleolithic populations in the southern Zagros. On the basis of the excavation of the Ghār-e Boof Cave and a general survey of its surroundings, the Dasht-e Rostam-Basht region of the southern Zagros, a local EUP lithic industry or "Rostamian" has been proposed (Conard and Ghasidian 2011). This chapter discusses how this distinct industry (see a different view in Chap. 10), characterized by significant bladelet production and backed pieces, emerged from an ecological point of view. Combining the lithic data and other data like faunal records, the author suggests a combination of the highly mobile settlement pattern and the raw material constraints in the local environments as the main factors leading to the emergence of this industry. Comparably mobile settlement patterns are also pointed out for the Early Upper Paleolithic of the Caucasus, and interestingly, the consequent lithic industry of the Caucasus is similarly characterized by the common production of bladelets and bladelet tools (Chap. 9).

The third region for review in Part II is South Asia. Chapter 12 focuses on the geographic distribution of Levallois artifacts in the Middle Paleolithic contexts in South Asia. The dense distribution of Levallois-dominated assemblages in the mountain foothills of Pakistan and the northwest part of the Indian continent is demonstrated, although mainly as surface finds. The absence of comparable assemblages further to the east requires an adequate interpretation from both cultural and biological viewpoints. Another interesting issue from the data shown in this chapter is that the techno-typological features of those Levallois industries do not necessarily correspond to those of the Zagros Mousterian distributed to the west. Do the Levallois-dominated assemblages in South Asia reflect the range expansion of Neanderthals from the Zagros, or modern humans coming through the Arabian Desert, or others? The key information should be provided from future research in the southern Zagros, a focal region for understanding the relationship to the hominins of Arabia, where very little has been known on the Middle Paleolithic. The discovery of lithic assemblages containing Nubian Levallois cores, allegedly reported from Pakistan (Blinkhorn et al. 2013), also remains to be tested with stratigraphic data.

The last article, Chap. 13, looks at the available archeological evidence from a different viewpoint, namely employing a computer simulation method to infer the expansion routes of modern humans from the Levant to northern Eurasia. Lithic assemblages more-or-less comparable to those of the Levantine IUP have been widely recovered in northern Eurasia from Central Europe, East Europe, and the Altai Mountains of east Central Asia, or even further to the east, suggesting the distribution is due to modern human dispersals from the Levant (Škrdla 2013; cf. Kuhn and Zwyns 2014). Supposing the southern Levant as a starting point of modern human expansion in Eurasia, this chapter predicts possible expansion routes based on a computer-based niche probability model, which allows the identification of the least-cost paths to the above target regions. This simulation assumes that the regions with environmental conditions (temperature, precipitation, altitude, and others) most comparable to those of the southern Levant were favored as priority regions to be passed through by the early IUP immigrants. The model then suggests routes to Central Europe via Anatolia and the Danube Valley, to the Russian Steppe of East Europe through the east coast of the Black Sea, and to the Altai region along the southern foothills of the Zagros and the Afghanistan plateau. It is interesting to see that the suggested routes to East Europe are more or less comparable to those postulated from the evidence in archeological records (Conard and Bolus 2003), and the bypasses to the Russian plain and Central Asia avoiding the Caucasus and the Zagros Mountains also match the archeological data (Chaps. 9 and 10). In further testing the suggested model with archeological data, it is important to note that the model does not incorporate the presence of indigenous populations like Neanderthals in the regions to be occupied by the IUP groups. This should be considered in interpretation when the actual expansion routes do not match the suggested least-cost paths.

1.5 Conclusion

The chapters of this volume highlight the unique status of the Levantine records in the RNMH research of West Asia. This is partly due to the rich data from the long and intensive

research history in the Levant, incomparable with those of other regions dealt with in this volume. At the same time, it may also reflect the unique events that actually occurred in the Levant: the possible co-existence of Neanderthals and modern humans for a much longer period than elsewhere, either by way of turnover in different periods, contemporaneously in different environmental settings, or overlapping in both time and place. If there were periods of co-existence, complex cultural interactions and replacement processes would probably have taken place. Comparable patterns may have occurred in the Caucasus, the Zagros, and South Asia, but the absence of the IUP or the transitional phenomena in these regions suggest different processes.

Archeological records as reviewed in this volume, far more abundant than the fossil records, should play a vital role in this attempt to elucidate how the replacement processes took place (see Shea 2017). Disentangling the complex cultural events in the Levant continues to be a major challenge for archeologists now equipped with much more refined field methodologies and radiometric dating techniques. New data, especially from previously less investigated regions like the Arabian Desert and Anatolia, which will help further characterize the Levantine situation, be especially welcome.

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