

## Preface

The behavioral strategies of Neanderthals are currently one of the key questions in archeological and paleoanthropological research. There are different reasons for this interest in Neanderthal behavior, related both to the development of empirical studies and the introduction of new theoretical paradigms that have changed the understanding of the material record of prehistoric groups. First, accessing behavior is the only way to approach one of the classic problems of archeological research: the variability of Middle Paleolithic archeological assemblages. The multifactor nature of this variability, closely linked to economic strategies and daily activities, necessarily implies examining the complexity of human behavior as an approach to explaining changes in the characteristics of archeological assemblages. Second, Neanderthal behavior has taken on special importance in the framework of the debate on the nature of the cultural transformations defining the transition from the Middle to the Upper Paleolithic. The behavioral capacities of Neanderthals are a key component in clarifying the scope of differences between this human species and anatomically modern humans, an essential question concerning the evolutionary role of Neanderthals and the way in which we understand their culture.

At the site of Abric Romani, we have never found skeletal remains attributed to *Homo neanderthalensis*. However, the lithic assemblages from all the archeological levels (except level A, corresponding to the Upper Paleolithic) exhibit methods of flake production and tool manufacture consistent with the technological characteristics traditionally associated with this human species. In addition, the chronology of these layers fits perfectly into the temporal range of the last Neanderthals. Therefore, we have always worked with the hypothesis that the archeological evidence found at this site was abandoned by hominids belonging to this European human species.

The scientific and popular debates about *Homo neanderthalensis* began from the very moment the first Neanderthal remains were discovered in Feldhofer Cave in 1856. Soon after that discovery, the remains were studied and interpreted by renowned members of the scientific community. Some of them suggested that the remains from Feldhofer Cave actually corresponded to a *Homo sapiens* affected by a serious pathology. In the mid nineteenth century creationism was still a common explanation for the appearance of living beings and the existence of human species different from *Homo sapiens* was difficult to accept.

One of the more passionate debates that arose as the number of fossils increased concerned the interaction or hybridization between Neanderthals and modern humans. This debate particularly intensified when new radiometric data began to suggest that the two species coexisted in certain European regions for at least 8 ka. And the controversy was further fuelled by evidence suggesting that previously, about 90 ka ago, Neanderthals and modern humans coexisted in the Near East, coinciding with the first

*Homo sapiens* migration out of Africa. This is still a crucial scientific debate. In spite of numerous excavations undertaken in Europe, fossils of these two species have never been found together in the same archeological layer. However, the genetic analysis recently published by Svante Pääbo and the Max Planck Institute in Leipzig, in coordination with an extensive team of researchers, found that direct contact did indeed occur between the two species during the Upper Pleistocene. These studies show that non-African *Homo sapiens* share between 1 and 4% of their gene pool with the extinct species.

Another topic traditionally treated in scientific works on Neanderthals concerns the factors involved in their extinction. This debate started at the beginning of the twentieth century and is still alive at the beginning of the twenty-first, and probably constitutes one of the most controversial questions in the paleoanthropological and archeological research about our genus.

Some of the arguments used in these debates throughout the past century emerged from the erroneous interpretation of some of the first Neanderthal fossils, like that found at La Chapelle-aux-Saints. Boule's incorrect reconstruction of this fossil contributed to the distorted view of Neanderthals that was dominant in the scientific and mass-culture arenas during most of the twentieth century. The anatomical characteristics of Neanderthals and the lack of symbolic expressions in the archeological assemblages produced by these hominids were arguments used to suggest that their cognitive and organizational patterns were less complex than those exhibited by modern humans.

However, there is evidence to dispute these inferences. It is true that the skull of *Homo neanderthalensis* was different from that of modern humans, but it had a large cranial volume—larger than that of *Homo sapiens*—which seems at odds with the purported inability of Neanderthals to develop symbolic expression. In the same way, it has also been argued that Neanderthals had some impediments to speech, or at least were incapable of the same level of communication that modern humans are capable of. However, the discovery of several ear bones in the Sima de los Huesos of Atapuerca, dated to 500 ka, has allowed the structure of the auditory area of *Homo heidelbergensis* to be reconstructed. This area is similar to that exhibited by *Homo sapiens*, which indicates that human species older than modern humans were probably capable of speech. Although funerary practices are also controversial, intentional burials have been well documented among European and Near Eastern hominids and provide sound evidence supporting the behavioral complexity of Neanderthals.

We believe that the social complexity of *Homo neanderthalensis* is beyond question considering the growing amount of data derived from archeological inquiry. Well verified information is essential to solving the debates described above. This is the only valid method in scientific endeavor: fieldwork should be done after a consistent hypothesis about behavioral complexity has been posed. Only then can we avoid the speculative loop that has often characterized the scientific inquiry into the social and evolutionary complexity of Neanderthals.

The aim of this monograph is to share the scientific information gained from the large-surface excavations carried out in level J, one of the archeological levels forming the Abric Romaní sequence. We wish to present new information about the behavioral patterns of Neanderthals living in northeastern Iberia 50 ka ago. We would like to contribute to the debate on the degree of complexity and organization characterizing these hominids from the multidisciplinary study of this archeological level. In addition, we think that the data yielded by this level are relevant to some of the big issues related to the emergence, evolution and extinction of *Homo neanderthalensis*. Level J is one of the richest of the sequence, both in the quantity of archeological remains and in its occupation structures.

It has been almost thirty years since our team started the excavations at this site on the banks of the Anoia River. In Spanish archeology, it was already a classic site when

our work began, having been discovered in 1909 and excavated at different times during the twentieth century. Abric Romaní is a rockshelter formed in a 50 m thick tufaceous formation. Sediments accumulated in this rockshelter throughout the Upper Pleistocene until it was totally filled in during MIS 2. At the beginning of the 1980s, we planned an excavation over a surface large enough to yield a paleoethnographic picture of the spatial strategies of Neanderthals. Since then, this large-surface strategy has been a fundamental component of our data recovery process. We are convinced that spatially oriented studies can lend a great deal towards understanding the level of behavioral complexity achieved by Neanderthals during Marine Isotope Stage 3.

The goal of our research is to discover the behaviors of these European hominids at a specific time and in a specific place in order to establish their social and organizational complexity. This is the first step towards a basis for comparison with the complexity and organization of modern humans arriving in Europe 40 ka ago. When fieldwork began we were convinced that through the recovery of reliable data we would be able to determine whether Neanderthals had a complex social structure.

An important characteristic of this study on level J is that most of the contributing researchers have been excavating the Abric Romaní for some time, some of them for over 20 years. This means that their experience is based on praxis and this close empirical knowledge is very useful for a reliable interpretation of the archeological record. They have been a part of the logical sequence made up of the starting hypothesis, excavation, data recovery, study, discussion and, finally, publication of the results.

More than ten archeological levels have been excavated over a surface equivalent to 90% of the total extension of the site. The excavation strategy followed since 1983 has been directed explicitly towards the reconstruction of the behavioral strategies of Neanderthal groups through the excavation of a large surface area, which includes most of the surface occupied originally. This has led to the excavation of an area measuring nearly 300 m<sup>2</sup>, undertaken with careful attention to the spatial distribution of the archeological remains and the identification of structures. This has yielded a diachronic perspective on spatial patterns spanning over more than 10 ka, conditioned by the rapid sedimentation rate characterizing the tufa deposits, which increases the temporal resolution of the occupation layers. Thick sterile layers separate these levels, which considerably diminishes the temporal depth of the palimpsests. This is the case of level J, where the excavated surface is approximately 240 m<sup>2</sup>.

In addition to tufa formation, other sedimentary processes have played an important role at Abric Romaní. The cyclic events of roof collapse conditioned the occupation of the site by Neanderthals, as the accumulation of blocks in some areas restricted the habitability of the rockshelter as a whole. As we will see in this book, level J is a good example of this.

Another goal of this work has been to place this far-reaching archeological record in a well-defined environmental context. Level J formed during MIS 3, a period characterized by a high climatic instability, during which cold phases alternated with wet and temperate interstadials. Some colleagues have suggested that these climatic conditions played an important role in the population dynamics of Neanderthals and even determined their extinction.

But the natural environment is not the only driving force that should be taken into account. The historical environment is also an essential key to interpreting the archeological record. This historical context is represented by the patterns defining the Middle Paleolithic as a developmental stage in material culture and social organization. Manufacturing of lithic and wood artifacts, provisioning of raw materials, food and fuel, processing and consumption of faunal and plant resources, and spatial organization are behavioral domains partly conditioned by long-term processes that appeared during Middle Pleistocene times.

Animal hunting and processing behaviors provide insight into the complexity of foraging strategies. Classic questions in faunal studies, like the opposition between specialization and diversification, can be clarified through the analysis of bone assemblages. The formation dynamics defined by the alternating occupations of humans and carnivores is another topic of interest that will be considered in the faunal analysis, although Abric Romaní is characterized by the dominant role of humans in the generation of the archeological record.

Among these behavioral patterns, microspatial interactions are particularly important. The role of hearths should be emphasized, as they are highly abundant in all the archeological levels excavated so far, and have allowed us to designate the formation of hearth-related activity areas as one of the essential features of Neanderthal spatial behavior. These areas can be interpreted as household spaces similar to those identified among contemporary hunter-gatherer groups, a comparison that makes it possible to approach the social dynamics of prehistoric groups. From this point of view, hearths were the basic points of reference in the formation of the archeological record. The dimensional and morphological variability of combustion structures shows the complexity of their functional patterns. These structures determined the spatial distribution of the archeological remains and were particularly important as evidence of social relations. From this perspective, the production and use of fire played a primary role in reinforcing human sociability. Level J can therefore be of great value in testing hypotheses concerning the social structure of Neanderthal groups.

The Abric Romaní rockshelter was a point of reference in the landscape that was visited repeatedly, possibly following a cyclical pattern. This temporal dimension is also an essential part of interpreting the archeological record. The central role of human behavior in the interpretation of the archeological record has been linked to a generalization of ethnoarcheological models as an essential referent in the reconstruction of the formation dynamics of assemblages. However, the use of these models to identify behavioral strategies gives rise to various problems, some of which are not always explicitly approached by researchers. One of the more pronounced of these problems is related to the different time scales that define archeological assemblages and ethnoarcheological contexts. Most archeological assemblages are palimpsests of one type or another, whose formation can span periods of hundreds or even thousands of years and to which many natural and cultural processes of very diverse character can have contributed. From this point of view, then, one must question the extent to which ethnographic models, defined by very different time scales, can provide suitable explanations for these assemblages, and whether misconceptions might occur in assemblage interpretations due to differences concerning formation time.

To approach these essential questions in current archeological research, it is necessary to study assemblages whose time scale is as close as possible to the ethnographic time scale, that is to say, to increase to the maximum the temporal resolution of our assemblages. Achieving this goal is not always easy, since the possibility of accessing increasingly higher temporal levels depends partly on the natural formation processes of the deposits and their stratigraphic resolution. Middle Paleolithic assemblages are often difficult to interpret in temporal terms. Most of them are deep palimpsests formed by the accumulation of archeological remains over long periods. Due to these formation processes, identifying spatial patterns is particularly challenging in many Pleistocene sites featuring low sedimentation rates. For this reason, deposits characterized by high-resolution geological formation processes are especially attractive, as they provide stratigraphic levels covering time periods that are considerably shorter compared to other contexts. These types of deposits are especially suitable for a behavioral reading of the archeological record, and the Abric Romaní is one of these deposits.

In spite of the high temporal resolution favored by geological formation dynamics, some data indicate that the level J assemblage corresponds to a palimpsest formed by an

indeterminate number of occupation episodes. The study of level J will be directed to the temporal dissection of this palimpsest, identifying higher resolution assemblages of remains from which it will be possible to access behavioral patterns with a considerable degree of certainty. In this context, the spatial data will be fundamental, since they reveal the dynamics of mobility and artifact transport from which the formation sequence of the archaeological assemblage can be established. The temporal and spatial interpretations will therefore be closely linked.

This spatio-temporal interpretation will be achieved through the information yielded by a wide range of analytic fields that constitute the different chapters of the monograph, including aspects related both to natural formation dynamics (stratigraphy, palaeoenvironment, biostratigraphy, taphonomy, etc.) and human activities (lithic technology, faunal processing, habitat structures, spatial distribution, wood implements, etc.). The last section will discuss whether the spatio-temporal perspective that we propose opens up a new view of Neanderthal behavior, different from that derived from works that do not address the importance of time resolution in the formation of archaeological assemblages.

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