

Introduction

1.1. Introduction

The research topic of this book lies within the general framework of prehistory. The objective is the study of human behaviour amongst Neanderthal populations, in particular aspects that influence behaviour (technical behaviour, subsistence practices, biogeography, climatology, palaeoecology, and human evolution). By formulating testable hypotheses, the study of empirical data from an interdisciplinary point of view is the only way we can try to understand the evolution of human behavioural diversity and lifeways in prehistory in relation to ecological conditions, climate change, and landscape evolution.

This book considers the important role of lithic technology in human evolution in relation to ecological behaviour models. Climate, vegetation and biodiversity are essential to understanding the ecological context in which human populations developed their technological lithic complex for the exploitation of environmental resources. Thus, through the interdisciplinary study of the archaeological record and the reconstruction of various biotopes in relation to the ecosystems in which they lived, we can develop a more nuanced understanding of the natural environment in which human groups developed and were forced to adapt.

The focus of this dissertation is the Iberian Peninsula and two regions that will be compared with each other in detail. The Iberian Peninsula plays an important role in the world of Eurasian Neanderthals. Thirty-seven sites with Neanderthals remains have been documented around the Iberian Peninsula, and a total of 699 Middle Palaeolithic sites with Mousterian techno-complexes are found here.

The data included in this analysis have been produced by a large number of research projects and found in dozens of scientific publications from the 19th century to today. In spite of the methodological shortcomings of many investigations carried out until the middle of the 20th century, from the end of the 20th century several important aspects such as documentation and recovery of all the remains found, coordination of each piece in three-dimensional space, and absolute dates (applying a variety of dating techniques) as the integration of multidisciplinary studies have been taken into account by the many research projects that have worked and are currently working on the Iberian Peninsula in order to study with scientific precision each archaeological site. As far as we know, at present in the Iberian Peninsula, there are a large number of Middle Palaeolithic sites with good archaeological contexts, systematic excavations, and reliable dating.

Specifically for this study, two areas inside of the Iberian Peninsula with a large number of sites with Middle Palaeolithic levels have been selected. These are the Cantabrian Mountains system in the north and the Betic Mountains system in the southeast. These are two very similar orographical areas (coast, piedmont, and high mountains), but with different bioclimatology and ecology. This will enable us to understand whether hominid groups of the same species (*Homo neanderthalensis*) technically behaved, exploited, and occupied the territory in similar or different ways, under different environmental conditions.

Eight sites within these regions, where the stratigraphic sequences have been documented and systematic excavation and dating have been carried out, have been selected. Mousterian lithic assemblages of the last Middle Palaeolithic levels of these eight sites, without any mixture with Aurignacian material or Initial Upper Palaeolithic, have been selected for study. Châtelperronian assemblages have not been included.

The four sites and archaeological levels studied in the north are: Axlor (Bizkaia): levels III and IV; EL Esquilleu (Cantabria): Level VI; Morín (Cantabria): Level XI; El Castillo: Level 20. In the southeast: Abrigo 3 (La Araña, Málaga): Z4-Z3, sectors C33-C45; Carhuela (Granada): level V; Zafarraya (Málaga): UA to UG; Gorham's Cave (Gibraltar): Area I, II, III Levels UBSm.6 to SSLm (Lsm).6.

The Mousterian lithic assemblages from the layers of these sites will be the first type of data to be analysed. These assemblages will be studied through of a morpho-technical and operational chains analysis in order to know the technical criteria used in the production and configuration sequences by Neanderthals, i.e. gestures, strategies, methods, management, selection, adaptation, etc.

Once performed, the analyses of different assemblages will be compared to each other. First, a comparison between the sites of the Cantabrian region will be carried out. Next, a comparison between the sites of the Betic region will be undertaken. Finally, a comparison between the two regions using statistical analysis of comparison will be carried out.

The second type of data that will be analysed is faunal data. An extensive database of the faunal remains excavated from the relevant levels was constructed from the literature. Of particular focus were large game (including: horses, bovids, goats, chamois, deer, reindeer, roe deer, wild boars, woolly rhino, giant deer, and mammoths), and small game (including: rabbits, tortoise, marine resources, fishes, and birds), as well as possible cannibalism practices and

the consumption of plants. This is important in allowing an insight into whether Neanderthal diet was diverse or specialised, the range of animal species that were consumed and their quantity and frequency, and the ability to hunt small animals and collect marine resources, nuts or others types of resources. This research is intended to test the variability of Neanderthal subsistence behaviour in both regions.

The third type of data that will be analysed as part of this comparative study is Neanderthal settlement patterns in the bioclimatic belts. Two different databases were constructed. The first concerns climate data, temperature and rainfall annual mean values from modern weather stations. The second focuses on archaeological sites (caves, rock-shelters, open air sites) from different chronocultural periods: Mousterian, Aurignacian, Gravettian and Solutrean, in both regions, collected from the scientific literature. This data forms the basis for various bioclimatic modelling maps created with the ArcGIS 10.3 program on a STRM 90 m Digital Elevation Models map of Iberia Peninsula. These were created in order to explore a series of questions; is there a difference in Neanderthal settlement patterning between both regions?; is there a preferred pattern of occupation in specific bioclimatic zones?; is there a difference in the bioclimatic settlement pattern between Anatomically Modern Humans groups and Neanderthals.

The aim is to generate empirical data to help us understand Neanderthal behaviour more objectively. The archaeological record, of course, is sadly incomplete and there are limitations in the available information we have. I am aware that this means it is difficult to cover or clarify the total mode of behaviour of a population or group of people. However, I think that it is worth the effort. The three key issues that I aim to explore are topics that are currently under more or less constant debate; some of them seem to be settled, and then they are re-addressed again. Studies of Neanderthals seem to involve constant changes in interpretation, thanks to new discoveries in recent years. The image that science and society created about Neanderthals is in a process of transformation and my hope is that the new research described in this dissertation will provide even more data which will be relevant to this process. Our epistemological starting point is far from image of Neanderthals as aberrant and rude beings and simply extinguished by the primacy of our species. My study will be carried out with the premise that Neanderthal behaviour is essentially modern.

Neanderthals also will be analysed by themselves, without being compared to *Homo sapiens sapiens*, although sometimes in this book reference to bibliographic aspects may emerge. However, the aim of this book is to identify what it is that is specific to Neanderthals.

1.2. Structure of the Book

Chapter 1: Introduction. It is the starting point where the nature and structure of this research is presented.

Chapter 2: Theoretical Framework. This chapter presents the epistemological framework in which this research is framed. It will begin with Neanderthal behaviour from a general perspective. Next, the distribution of fossil Neanderthals in Iberia, then a discussion on the Middle Palaeolithic technological variability in general, and in particular the case of the Iberian Peninsula are presented. Finally, the paleoenvironmental context and the geological context of the Iberian Peninsula are presented.

Chapter 3: Objectives. This chapter presents the purpose of conducting the research for this book. First, the hypothesis to be test is presented and then a series of research questions in several general categories of study are presented. These include technical behaviour, subsistence practice and bioclimatic settlement patterns.

Chapter 4: Research Design and Methodology. This chapter presents the selection criteria for the period; the regions and sites under study; the method of data collection from the creation of three databases (sites, fauna and climate); and the method of data analysis: lithic assemblages, fauna, bioclimatic settlement patterns.

Chapter 5: Neanderthal Technical Behaviour. This chapter presents the state of research at each of the sites selected for the study of lithic assemblages belonging to the Middle Palaeolithic through publications by various research studies. Also, it presents the results of the morpho-technical analyses of the lithic assemblages, comparisons between assemblages of the same region, and between assemblages of the two regions of study by using statistical analysis. Finally, a general contextualization with Mousterian lithic assemblages of the main sites of the each region will be performed.

Chapter 6: Neanderthal Subsistence Practices. This chapter presents the analysis of subsistence modes and diet of Neanderthals in each region, and a comparison between both regions.

Chapter 7: Bioclimatic Settlement Pattern. This chapter presents and compares the occupation of territory in relation to the different bioclimatic belts in both regions during the Mousterian, Châtelperronian, Aurignacian, Gravettian and Solutrean periods.

Chapter 8: Conclusions: This chapter presents a comprehensive and summary reflection about the results, data processed at different points during this research and considers lines of future research.