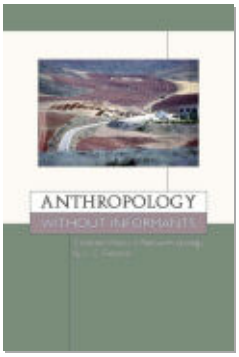
# PART II: An Overview of the Paleolithic

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PART

# II

# AN OVERVIEW OF THE PALEOLITHIC

There are two chapters in this section. Their scope is broad and has implications that go far beyond my limited field of experience. Although most of my own research has been centered on Spain, in the first chapter of this section I attempted a more ambitious synthesis of all we thought we knew about the Paleolithic past some thirty years ago. As one of the very few U.S.-trained prehistorians who has been privileged to excavate sites from all three Paleolithic periods—Lower (Torralba, Ambrona, Castillo), Middle (el Conde, Morín), and Upper (el Conde, Morín, el Juyo, Altamira)—I feel that my opinion may have some validity yet. I stand by most of the observations in this chapter, and particularly those having to do with the utility of an information-theoretical approach, the lack of any strong adaptive advantage accruing to the hominid groups who invented stone tools, the rudimentary nature of Oldowan artifacts, the gradual nature of cultural evolution, and the difference between "technique-oriented" and "region-and-resource-oriented" adaptations. One might well ask why I have chosen to include an article based on such evidently outmoded data. The answer is that although my analysis may not conform to the most up-to-date fads, its conclusions still seem to hold. The test of the validity of reasoning in the field of paleoanthropology has always been its conformity with the facts, and in this case the Paleolithic realities still seem quite congruent with my conclusions.



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If I were to rewrite this chapter right now, it would of course be different in some respects. I would add several observations. I would be careful to distinguish between fully effective cultural systems and fully modern cultural elaboration. There is now more evidence of chimp tool manufacture, this time in stone. The date of the earliest stone industries associated with hominids must now be pushed back considerably in time. The dawn of "wild harvesting" would be restated as Solutrean rather than Lower Magdalenian. Several sites, such as Dmanisi, los Aridos, Romaní, Sidrón, Atapuerca, and many others, have been more recently discovered or newly excavated and ought to have been mentioned. Particularly relevant to the Spanish case, I would now discuss the suggested classification of some gracile *Homo erectus* as *Homo antecessor.* I would also deal with the implications of more recent finds such as *Ardipithecus ramidus*, *A. kadabba*, *Sahelanthropus tchadensis*, and *Orrorin tugenensis*, some of which seem less specifically early hominid than they are close to the root of our relationship with chimpanzees. In light of current debates about the "Hobbit," I would also have to rethink my feeling that once the Neandertals disappeared, being replaced by modern *Homo sapiens sapiens*, only a single hominid species survived. Last, I would revise the number of stone tool types as a function of collection size downward. Better data than were available thirty years ago suggest that through the Middle Acheulean, in any reasonably sized assemblage, one tends to find about as many types as the square root of retouched pieces, although during the Upper Paleolithic that figure often reaches, but seldom exceeds, twice the square root, rather than the 2.5 times the square root indicated in the text. (I do not claim that this is a "law" but rather the result of empirical observation, and others, using different definitions of "tool types," will arrive at somewhat different formulations. The fact remains that, excavation techniques being equal, no Upper Paleolithic assemblage will prove to contain many more types than an earlier assemblage of comparable size, although such is sometimes expected to be the case.) None of these changes, abundant though they are, affects the general validity of my conclusions, and I still maintain that they are still more reasonable than any alternative and did not just seem so at the time when they were written.

What kind of analysis can be done when all that is known is the spatial distribution of sites with different contents? Geographers have devised several tests for data of this kind. First of all, there are the "nearest neighbor" tests that show whether sites have a tendency to cluster in the landscape instead of being distributed more or less evenly over it. An even distribution might be expected if all of the sites represented more or less the same range of activities and if the essential resources for survival were also evenly distributed. On the other hand, if those resources tended to be found only at specific places, we might expect that sites would cluster around those places. (These are the common assumptions most people make about Paleolithic sites and their locations.) My first application of such a test showed that Cantabrian Paleolithic sites are clustered rather than uniformly distributed; however, differences in past resource availability did not seem to be the whole explanation. The techniques of site catchment analysis may have appeared to offer the means to their analysis, but obviously there was no way to reconstruct early landscapes in sufficient

detail for use, and the assumptions the theory makes about the distances Paleolithic people might have been willing to travel for access to resources were not realistic.

Geographers have also studied distributions using Thiessen diagrams or Voronoi tesserae, but usually the technique has assumed that sites are not all equivalent: modern cities, shopping centers, and so forth are both hierarchically arranged and dependent on ease of transportation from centers to ancillary sites. On both counts, geographers have studied distributions of places that are thought to be very different from the supposedly "egalitarian" Paleolithic sites. But an attempt to apply this descriptive test shows us that these well-tried geographic techniques for the description of site adjacency, commonly in use for the study of the settlements and trade routes of much later periods, may be of utility in the study of Paleolithic settlements. What is more, they reveal the existence of previously unsuspected hierarchies in our data.

The chapter on Voronoi tesserae is an adventure into rarified theory. However, the data for this chapter are less satisfactory than those for the rest, so its conclusions are speculative at best and need to be verified with more complete information. Nonetheless, the test raises some interesting possibilities and should change our way of thinking about the complexities of Paleolithic life.