

The Faunas of Hayonim Cave, Israel: A 200,000-Year Record of Paleolithic Diet, Demography, and Society

Mary C. Stiner

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The Faunas of Hayonim Cave, Israel, is a great example of how scientific methods can be utilized to paint a more accurate picture of humanity. Stiner uses highly specialized zooarchaeological approaches to describe the changing human presence and culture in Israel as it transitioned from the Middle to the Upper Paleolithic. The faunal remains were recovered from the archaeological sites of Hayonim Cave and Meged Rockshelter. These data are supplemented with a comparative faunal analysis previously completed for the nearby site of Kebara Cave. There are a total of twelve chapters; four of the chapters are co-authored with Stiner or independently authored and include O. Bar-Yosef, A. Belfer-Cohen, P. Goldberg, S.L. Kuhn, A.V. Margaris, L. Meignen, N.D. Munro, T.A. Surovell, B. Vandermeersch, and S. Weiner.

For the purposes of this review the content of the text will be presented with the chapters combined to create topic specific sections. These sections each address a different step of the analysis and interpretation process.

The first section of the book (Chapters 1 and 2) provides the reader with an overview of the region as a whole and a detailed description of the sites under study. The region is the Levant—the portion of the world where the European, Asian, and African continents converge and which early hominids and modern humans found in co-habitation. The sites themselves are all located within modern-day Israel, and they span over 200,000 years of human activity.

The next section (Chapters 3–5) provides a detailed explanation of factors that contribute to whether or not bone preserves, as well as methods that can be used to determine the presence and extent of human modification at the sites. In terms of bone preservation, I found the various scientific experiments used to study the effect of outside factors, such as burning, fragmentation, and dissolution, to be innovative and highly informative.

Having laid out a basic analysis of the archaeological material under investigation, the next three sections of the book are where Stiner begins to interpret what it all means. The first of these (Chapters 6–9) discusses the changes that occurred in the relative frequency and species distribution of faunal remains. There is a shift that occurs in the type of animals that make up the primary prey of human hunters from the Middle to the Upper Paleolithic. Stiner demonstrates that a focus on small animals shows that, although a factor, climate was not the primary catalyst for dietary change; instead this change was a result of a shift in hunting preferences. Middle Paleolithic hunters relied on small

animals that were easy to catch, while Upper Paleolithic hunters relied on animals that were able to reproduce more rapidly but which were also harder to catch. Furthermore, the small animals that early hominids did rely on for subsistence were not a significant part of their diet compared to modern humans.

Though the next section covers two distinct topics, in general, Chapters 10 and 11 compare large mammal hunting tactics of the Middle and Upper Paleolithic periods. This section shows that although some increased specialization occurred, both human populations were specialized hunters of large game animals who focused on prime-age specimens and brought food back to be shared with others. This new evidence helps dispel the myth of early humans being primarily scavengers, and instead portrays them as capable hunters.

The last chapter of the book is an overall discussion of what the faunal remains tell us about the differences that existed between modern and archaic human populations. Stiner says that the different focus on small game exploitation caused Middle Paleolithic groups to remain small and dispersed, while later humans who sustained themselves on the large, quickly maturing mammals and birds could have larger, more concentrated populations. Adding to this adaptive aspect is the idea that later humans had stone and bone hunting tools that earlier populations did not, which gave later populations an advantage in hunting. Instead of needing to hunt cooperatively and running the risk of serious injury, later humans could take down a large animal much quicker and with less assistance. The result of these two changes in subsistence practices, according to Stiner, is the development of a division of labor where strong, healthy men would hunt large mammals while women, older children, and the elderly could hunt small game and process meat at the camp. The conclusion of this book is that the development of a division of labor led to an increase in the types of resources that could act as a stable source of food and ensure the nutrition of more children, which in turn could lead to a larger population. This is an argument that Stiner seems to have been able to support with an exhaustive analysis of zooarchaeological remains. If corroborated by further research, this could prove a valuable tool in the paleoanthropological debate on the transition to early humans in the Middle East.

Although the book was excellent, I would argue that when modern humans arrived in the region there would not have been a complete replacement, but that some of

the early hominids would have adopted the hunting techniques of the new arrivals and possibly integrated into the immigrant populations. It seems parsimonious that if these populations co-existed in the same area they would have exchanged technology, even if only inadvertently. Also, cranial remains such as Amud I and Skhul V seem to point to intermediary species. Additionally, it would have been helpful to have definitions of certain scientific or geographically specific terms, such as diagenesis and wadi; a glossary or appendix might be beneficial for readers not familiar with the techniques or region.

The assumption that early hominids were primarily carnivorous, with little or no reliance on gathering for subsistence, while later humans were the first hunter and gatherer groups, might also deserve scrutiny, because there are limitations to the two primary methods of determining the dietary composition of a paleo-populations. First, archaeological preservation of plant foods is dependent on factors such as climate, soil acidity, and food preparation methods. For example, in a study on the reliance of the Bunyoro people of East Africa on finger millet, there has been little archaeological evidence found to support the ethnographic record of the importance of grain to the diet. However, research has shown that the discrepancy may have occurred because traditionally grain was not cooked and subsequently not preserved with the charred wood (Young 1999). Secondly, in terms of the accuracy of stable isotope analysis, there is evidence to suggest that factors other than

diet contribute to the protein levels found within the bones (Gannes et al., 1997; Sillen et al. 1989).

Aside from the content of the book, the extensive use of detailed tables and figures helped to structure the research data into coherent and accessible information. I would certainly recommend this book to any researcher or student interested in the field of paleoanthropology, because as Stiner has shown, zooarchaeology can add a material component that generates information that supplements osteological and genetic findings. This book also has utility as a guide for faunal analysis in archaeological projects. All too often researchers ignore small animals and focus on large mammals, but by doing so they are neglecting an important element of subsistence that contributes potentially significantly evidence otherwise overlooked.

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