

## **Where would they be without technology? An archaeologist's perspective on the evolution of hunting & gathering**

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The minutiae of daily social life are largely invisible to those who study the deep past of hunter-gatherers. Many aspects of human behaviour leave behind precious little in the way of traces. But the stones and bones of the early archaeological record are our primary source of data on the evolution of hunting and gathering over millions of years. These data are often preserved in less than ideal circumstances and coarsely dated. Our time frames stretch well beyond the scale of individual human experience, we rely on large-scale patterns of behaviour drawn from comparative approaches to ethnography and primatology. Although we also generate data from experimental and simulation studies, focusing on particular issues and processes that are less accessible ethnographically, Palaeolithic archaeology is by design and necessity a generalising science.

As a student I was taught to tread carefully when straying beyond the 'hard' data of behaviours related to subsistence and environment. Beyond subsistence lay ephemeral behaviours - such as kinship and beliefs - that were best left to social anthropologists to investigate. Although archaeology was a sub-set of anthropology in this North American perspective, its approach to the study of diversity was very different. Our task was to understand the underlying processes of adaptation that shaped us biologically and socially and to generate testable hypotheses. By the end of my student days something new and disturbing was on the horizon with its own forbidding language of discourse. The post-modernist challenge to the hegemony of science seemed irrelevant at the time, but in retrospect it loosened the intellectual straitjacket of the science/humanities divide. Palaeolithic archaeologists are now comfortable discussing the role of emotions, child rearing, theory of mind and other topics once considered inaccessible to scientific scrutiny.

The title of this address may, therefore, seem like a throwback to earlier, pre-enlightened times, but I believe that the study of early technology offers us a prism with which to view a spectrum of integrated behaviours and capacities. Humans have built a technological niche. We are dependent on tools for our physical, social and emotional well-being. The deep roots of that niche go back 3.3 million years, but I will make the case that a fundamental change in our relationship with technology took place much more recently, roughly 500,000 years ago, when the stone was added to the stick to make something new. That was the invention of hafting. Hafting is a complex technology in which smaller parts are put together to form a larger functioning whole. Each part is made using other tools and skills. In time all technology would be constructed on this principle of integrated chains of production and planning. The relevance of hafting to the evolution of hunting and gathering is partly practical, enabling the creation of new, more effective tools for hunting (stone-tipped spears) and processing foods and raw materials. But its invention and transmission across generations has wider implications in terms of the evolution of the cognitive, developmental and social foundations that support extended childhood learning.

The material record by necessity remains the focus of Palaeolithic archaeology, but we now have a broad intellectual toolkit with which to examine what it means to be human.