High above the western shore of Lake Naivasha, a blue pool on the parched floor of East Africa’s Great Rift Valley, sits a small rockshelter carved into the Mau Escarpment. Maasai pastoralists who once occupied this region in central Kenya called the place Enkapune Ya Muto, or ‘Twilight Cave.’ People have long sought shelter there. The cave’s sediments record important cultural changes during the past few thousand years, including the first local experiments with agriculture and with sheep and goat domestication. Buried more than three meters deep in the sand, silt, and loam at Enkapune Ya Muto, however, lie the traces of an earlier and even more significant event in human prehistory. Tens of thousands of pieces of obsidian, a jet-black volcanic glass, were long ago fashioned into finger-length knives with scalpel-sharp edges, thumbnail-sized scrapers, and
other stone tools, made on the spot at an ancient workshop. But what most impressed archeologist Stanley Ambrose were nearly six hundred fragments of ostrich eggshell, including thirteen that had been fashioned into disk-shaped beads about a quarter-inch in diameter. Forty thousand years ago, a person or persons crouched near the mouth of Enkapune Ya Muto to drill holes through angular fragments of ostrich eggshell and to grind the edges of each piece until only a delicate ring remained. Many shell fragments snapped in half under pressure from the stone drill or from the edge-grinding that followed. The craftspeople discarded each broken piece and began again with a fresh fragment of shell. Ambrose believes that these ancient beads played a key role in the survival strategy of the craftspeople and their families. In the Kalahari Desert of Botswana, !Kung San hunter-gatherers still practice a system of gift exchange known as hxaro. Certain items, such as food, are readily shared among the !Kung but never exchanged as gifts. The most appropriate gifts for all occasions just happen to be strands of ostrich eggshell beads. The generic word for gift is synonymous with the !Kung word for sewn beadwork. Although the nomadic !Kung carry the barest minimum of personal possessions, they invest considerable time and energy in creating eggshell beads. No one knows whether the toolmakers at Enkapune Ya Muto or the other ancient African sites intended their ostrich eggshell beads to be social gifts. But if these beads were invested with symbolic meaning similar to that of beads among the !Kung, then Twilight Cave may record the dawning of modern human behavior.

–From The Dawn of Human Culture

**Personal Review: The Dawn of Human Culture by Richard G. Klein**

Professor Klein and science editor Blake Edgar refer to "innovation" as the key to the great leap forward made by humans about 50,000 years ago. This was the beginning of human culture--the "dawn" as they call it. It wasn't a change in physiology--humans had been anatomically modern for something like 150,000 years. What changed was the wiring in the brain, or the chemistry in the brain or the linkage between the modules in the brain, or, as they express it, there was a "neurological shift"--at any rate, something that would never show up in a fossil.

This is Klein's theory and it is a persuasive one, albeit one that can never be proven--well, probably can never be proven. If under some ice sheet (as the planet continues to warm) we find a 100,000-year-old human intact, perhaps an examination of his or her brain and a comparison with the modern brain will give us the proof. Barring that very unlikely event, there is no way we can see what changed.

But it doesn't matter. Formal proof of Klein's conjecture (and of course, he is hardly the first to present such a theory) is unnecessary. We know from the behavioral changes that took place in something like a twinkling of an eye that humans beginning about 50,000 years ago were suddenly...
different. They had a culture that developed from the use of what might broadly be called symbolism. We can see this in the petroglyphs and cave art and artifacts that they left. We can also see it in the way they displaced the Neanderthals in Europe and left no trace of Homo erectus elsewhere in the world, and how quickly they spread to the far corners of the planet.

It is easy to see that they must have had symbolic language as well. Indeed, I think language really is the key to what happened, and this is Klein's point as well. The key idea is that "language is almost a kind of sixth sense, since it allows people to supplement their five primary senses with information drawn from the primary senses of others." (p. 146)

Today's mighty culture would be impossible without written language or some means of taking down and recording and maintaining human knowledge. Prior to written language this was done through an oral tradition handed down from one generation to the next. Myths, stories, poetry, ideas, information and methods were memorized and recited. Prior to that however, prior to the use of symbolic language, there would have been only a limited ability to pass ideas down from one generation to the next. It would have been difficult to even share some ideas with a contemporary. But once symbolic language developed, people could demonstrate events and things not present with others through the use of words—that is, symbols standing for the actual objects or events--nouns and verbs.

From a representation symbolically of something seen or something that happened, it was only a step to a representation of something never seen before--such as a net for catching birds or fish or a stampede of wildebeests over a cliff.

This is the innovation that Klein refers to. This is the difference between the Late Stone Age culture and the Middle Stone Age culture, between the Upper Paleolithic and the Mousterian. A human arm can throw a spear, but a human arm extended with a lance can throw the spear farther and with more force. People could travel only so far without water, but a people who carried water in skins or watertight baskets (not preserved in the fossil record obviously!) could travel much farther. Actually I imagine that the first truly modern humans carried soup—yes, soup with its sterile, boiled water—in skins on their backs!

What this book is about then is a close and detailed description of the progression from archaic humans to fully modern humans. It is a carefully constructed argument that shows that the change was not gradual, as some would have it, but abrupt. Whatever one may think about Gould and Eldredge's punctuated equilibrium, Klein makes it clear that in the case of human evolution, a key transformation—indeed THE key transformation—occurred quickly. The most persuasive part of their argument is that the "new" humans were able to not only dazzle us with their symbolic art, etc.,
they were able to grow their populations and thrive in places where humanoids had never survived before.

This book is also full of interesting information about archeology and anthropology, including how fossils are dated and theories developed. One of my favorite tidbits is this: the size of archaic human populations could be surmised by the size of tortoise bones! Since tortoises were relatively easy to catch, the biggest ones, "the most visible and the most meaty" would have been taken first. So as "the number of collectors increased, average tortoise size declined." (p. 166)

For many readers, the most interesting part of the book might be the distinction that Klein and Edgar make between Homo neanderthalensis and Homo sapiens: "It doesn't follow that Neanderthals and modern humans couldn't interbreed or that they never did, but the DNA results strongly support fossil and archeological findings that if interbreeding occurred, it was rare...this inference, together with fossil evidence...justifies their assignment to...separate species..." (pp. 185-186)

This is not an easy book, but it is not unnecessarily difficult either. I think Klein and Edgar did a good job of treading that fine line between being too technical (and jargony) and not technical enough.

By the way, despite the sensational subtitle (which only appears on the cover), the authors scrupulously and wisely avoid using the word "consciousness" throughout, and nowhere do they speak of a "Big Bang of Human Consciousness."

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