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Response I
Kelsie McGraw
11354582

During the beginning of the Upper Paleolithic period, a cultural revolution occurred that marked the start of great changes within the recently emerged species, *Homo sapiens*. A key feature of their evolution is the fact that they had modern behavior: they acted like us. There is a theory in which the chronology for the development of this behavior is a short one, in which *Homo sapiens'* behavior builds upon a recent and rapid evolutionary history reaching back to the Middle Paleolithic. This theory includes several notable changes, including that of tool technologies, the use of ceramics, more permanent occupational settlements, personal adornments, and art, beginning about 50,000 years ago.

Our most recent ancestor, *Homo heidelbergensis*, emerged around 600Ma and was the first to migrate out of Africa and into Asia and Europe (Price 43). Two new species emerged from this ancestor: *Homo neanderthalensis* at ~300 Ka and *Homo sapiens* at around 1.95 Ka. Both are considered to be closely related and both possess similar traits, including "posture, dexterity, and mobility" (Price 118). However, it is believed that Neanderthals lacked the imagination needed for cultural changes, unlike our species. The first thing to change with humans was the arrival of new tool technology. This was the primary development of behavioral modernity, preceding the arrival of *Homo sapiens sapiens* at around 42,000 years ago (Price 124). One of the well-known industries of tool-making occurred during the Middle- and Upper-Paleolithic periods, around central and southwestern France. This industry is known as the Chatelperronian and is a "development from local Mousterian industries associated with Neanderthals" (Nowell 443). These pieces of technology, along with similar ones found in some sites in southern China, are flakes derived from shaped cores: a variation from the simple flint tools of the Mousterian variety. Other tool industries also occurring during the Middle and Upper Paleolithic followed, slowly gaining more refinement and accuracy, including the Aurignacian, Perigordian, Solutrean, and Magdalenian. These technologies included weapons made of bone, wood, ivory, and antler (Price 125). Some samples of these new tools can be found in Katanda, Democratic Republic of the Congo, where barbed bone points have been excavated. They are believed to be more recent, being comparatively dated to after 10 Ka (Klein 274). Looking at these advancements throughout the various tool industries shows that their creators had the time and imaginative processes to make these changes, and it displays their behavioral modernity.

As the tool technology of a group advances, it allows for a substantial amount of skill building. More accurate and easily replaceable tools are able to be produced, and the opportunity to hunt more often occurs. With game being more easily retrieved, the need to constantly follow the food supply declines, and thus, more modern and permanent settlements arise. Considering that previous anatomically modern humans were solely nomadic, this change in behavior takes a step towards habits like ours. Looking at the Dolni Vestonice site in the Czech Republic, it is apparent that the population of woolly mammoths, horses and reindeer in the area was abundant enough that the people did not need to move (Price 127-9). Housing structures were created using the surplus of bones and skins from their prey. More evidence of other semi-permanent occupational structures may be found along the Seine river, in France (Price 138-9). This area includes evidence of camps from Magdalenian reindeer hunters from about 12,000 years ago. One site in particular, Pincevent, was very well preserved. From the excellent conditions, within

one layer (IV) excavators were able to discover “200,000 pounds of flint artifacts, the skeletal remains of at least 43 reindeer, fire-cracked rock, ochre, and several shallow pits and fireplaces” (Price 139). It is believed that group activities were centered within three huts, each having their own fireplace, where activities were centered around. This sort of behavior such as gathering together around one place, like a fire, is something that one might see today. These occupational sites display more purposeful and organized structural aspects, bringing our ancestors one step closer to recent behavioral modernity.

Imagination was something that was absent from our ancestors; there was no time to think of anything but surviving. Yet, as these groups of *homo sapiens* evolved and adapted to the new world, they were able to make survival a little easier, and had the time to be creative. Displayed at both the previously discussed sites and many others is the abundant evidence of creativity. In 1951, at the Dolni Vestonice site, a structure smaller than the animal-bone huts was discovered. This hut was unusual compared to the others, as it had a reduced diameter and was more protected from the elements. On the floor of the hut was a pile of debris and ashes, under which more than 2300 clay figurines were found and believed to be fired here. This rich find includes figures of heads, feet, animals, and fired lumps of clay. Many tools made from blades, like knives and points, and mammoth bone, such as needles and digging utensils were found as well. Yet another interesting vestige uncovered at Dolni Vestonice is a burial site. A woman's skeleton was found under two mammoth shoulder bones. She was covered in ochre, with a flint point by her head. These attributes display that these people had specific burial customs. It is apparent that the artifacts of the Vestonice site display some of the earliest signs of cultural creativity, including having predated pottery by 15,000 years (Price 128-9).

Also involved with the creative advancements towards behavioral modernity in humans- the emergence of personal adornments. Found within the Blombos Cave in South Africa was a range of items, including ochre with an abstract pattern scratched on it, 41 perforated shells thought to be beads, and bone artifacts. However, it is also thought that the pattern on the ochre could be from testing it on a surface before using it as a powder or skin decoration, as the Blombos people did (Klein 272). Decoration undoubtedly became more and more important as humans evolved culturally. Around 38 Ka, mural art in caves began to appear. One of the most famous examples dates back to 17,000 years ago, at the Cave of Lascaux in France. Discovered in 1940, the cave includes about 2000 drawings of animals, people, and abstract signs (Nechvatal 74). Lesser known is the Gargas cave, also in France, which depicts human hands. Unusually, these hands are shown missing knuckles and partial or whole fingers. It is possible that these were signatures or graffiti, but the true meaning is completely unknown. Other unusual cave paintings can be found at the Les Trois Frères, where there are humans in animal costumes, believed to be hunters, dancers, or part of a ritual (Price, 132). All of these examples of art and creativity of our ancestors clearly depict the presence of behavioral modernity.

It is apparent that our ancestors showed behavioral modernity over a short chronology, beginning at around 50,000 years ago. There is an abundance of dated evidence showing that *Homo sapiens* acted as we do and shared similar cognitive abilities. Advances in tool technology, the use of ceramics, the transition of being nomadic to sedentary, the use of personal ornaments and the emergence of art are some of many displays of behavioral modernity. Our recent Paleolithic ancestors did possess characteristics and habits much like our own today.

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