First Genius

The Dawn of Creativity

as told by Dr. Frank Elwell

First Genius

Homo sapiens has existed as a separate species, Jared Diamond reports, for about seven million years. For the first five or six million years of that history, humankind was confined to Africa.

First Genius

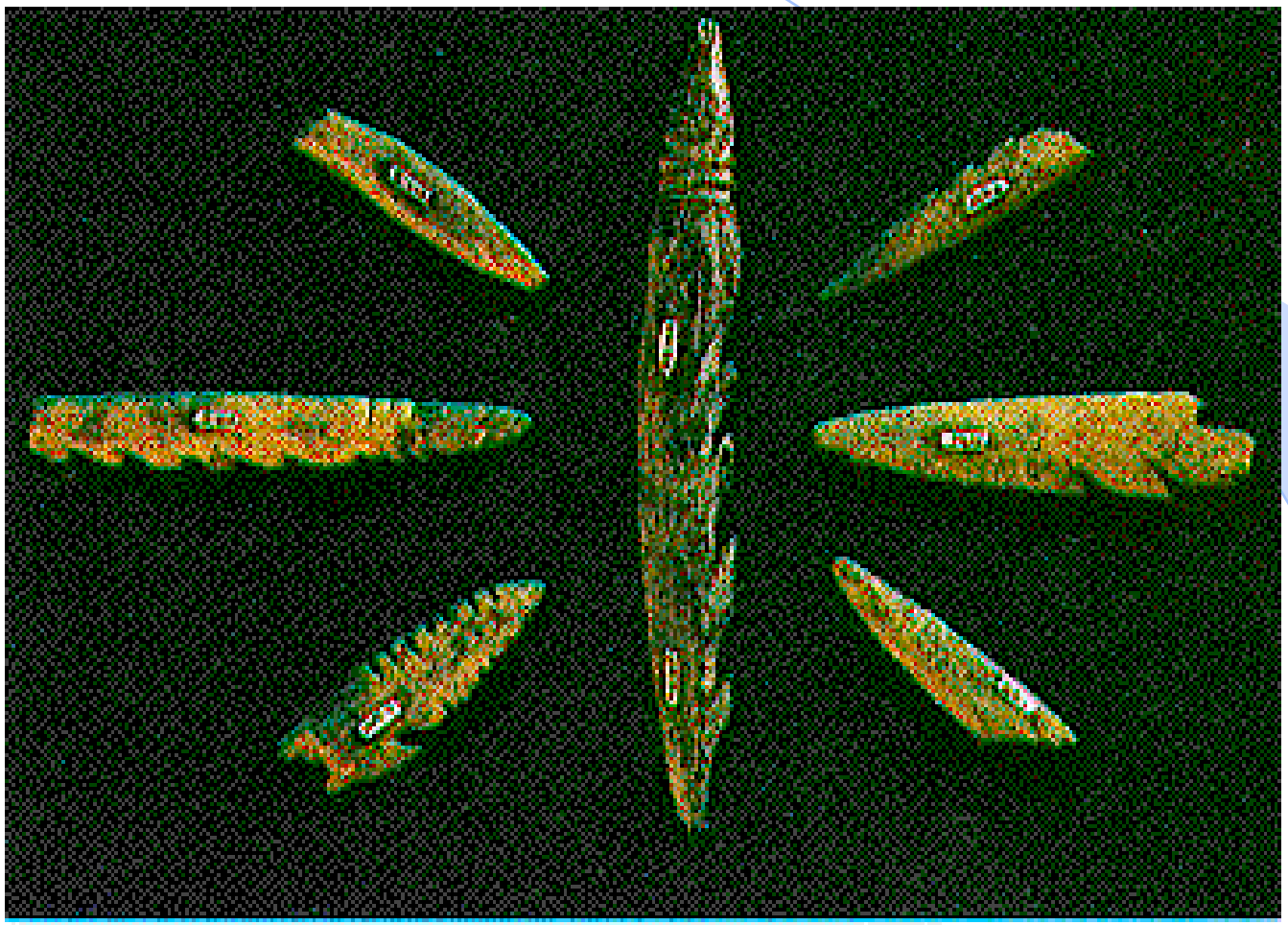
What is most remarkable is the relatively unchanging character of technology associated with early humans: tools were primitive and clumsy, and little change in shape or design occurred over long periods of time.

Great Leap Forward

History finally “takes off,” Diamond notes, about fifty thousand years ago with what is commonly termed the “Great Leap Forward,” in which artifacts became more abundant, intricately designed, and varied. (This should not be confused with the Great Leap Forward [大跃进] that occurred in China from 1958 to 1961, which was not.)

Great Leap Forward

Diamond attributes this advance to the development of the voice box, and thus sophisticated language, which makes culture possible. However, many dispute this, believing that language evolved well before this time.



Great Leap Forward

Spencer Wells (2010) points to evidence that the Great Leap was much more gradual than previously thought. Recent discoveries of decorative art and artifacts in Africa provide evidence that the changes began more than seventy thousand years ago, only reaching full flower through selective pressure on human populations brought about by environmental change.

Great Leap Forward

About seventy-five thousand years ago, Wells explains, one of the largest volcanoes in the last two million years erupted. Mount Toba in northern Sumatra spewed more than three thousand times the ash than the 1980 eruption of Mount St. Helens.

Great Leap Forward

As a result of Toba's eruption, global temperatures were lowered "somewhere between nine and twenty-seven degrees Fahrenheit" (97). This was then followed by about a thousand-year period of "substantially cooler temperatures, among the coldest of the last ice age" (99).

Great Leap Forward

Not only did Africa become considerably cooler, but it also became much drier since water was locked up in the northern ice sheets. These environmental changes, Wells believes, put substantial pressure on human populations almost to the point of extinction.

Great Leap Forward

Wells cites genetic evidence suggesting that the total number of our direct ancestors alive at this point was only about two thousand to ten thousand individuals. He characterizes the artifacts of the time as evidence of a “novel way” of thought, indicative of ability for abstract thought, problem solving, and rapid adaptation to new situations in an innovative manner (102).

Great Leap Forward

"THE BEGINNING OF WHAT WE CALL HUMAN BEHAVIOR WAS FAR OLDER THAN 40,000 YEARS AGO. AND IT BEGAN IN AFRICA, NOT EUROPE."

--ALISON BROOKS

Great Leap Forward

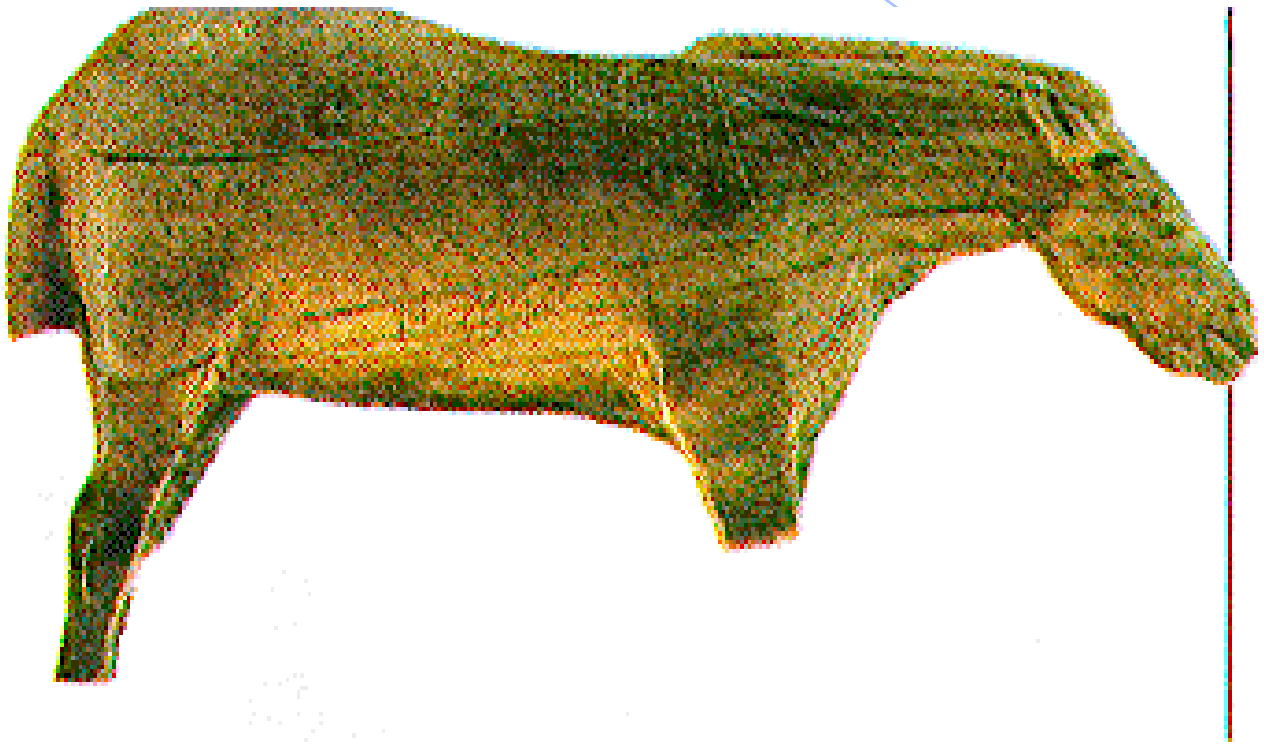
Wells and others posit that it was only during the last ice age, when the human population was stressed to near extinction, that selective pressures on that population produced humans that could “make use of their ability to solve problems in novel ways” (99).

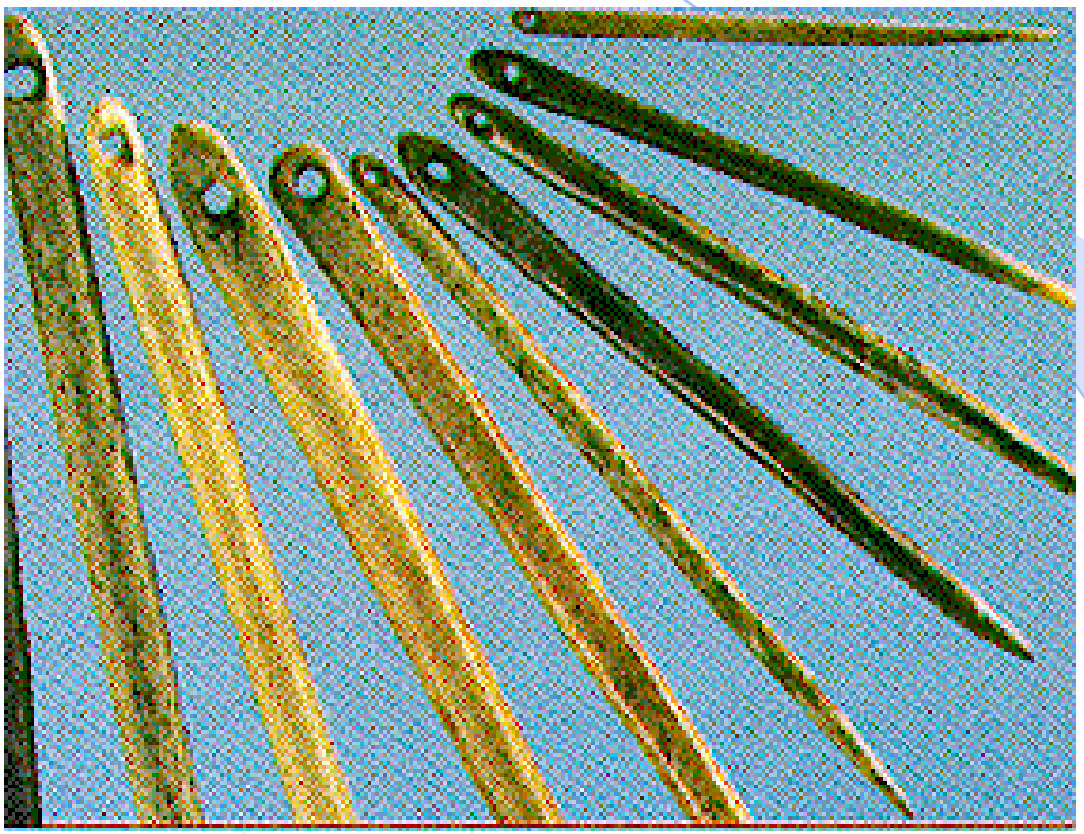
Great Leap Forward

Humans who had developed the ability to adapt through observation, experience, and abstract thought, and thus to devise technologies and develop new skills to exploit their environment, were those who survived and reproduced in the harsh African environment of the time.

Great Leap Forward

According to the best genetic evidence today, it was this small cadre of survivors in Africa from which all modern humans descend. The end of the ice age brought an extension of the human range: out of Africa and into Eurasia to Australia and New Guinea, armed with new technology and sophisticated culture.



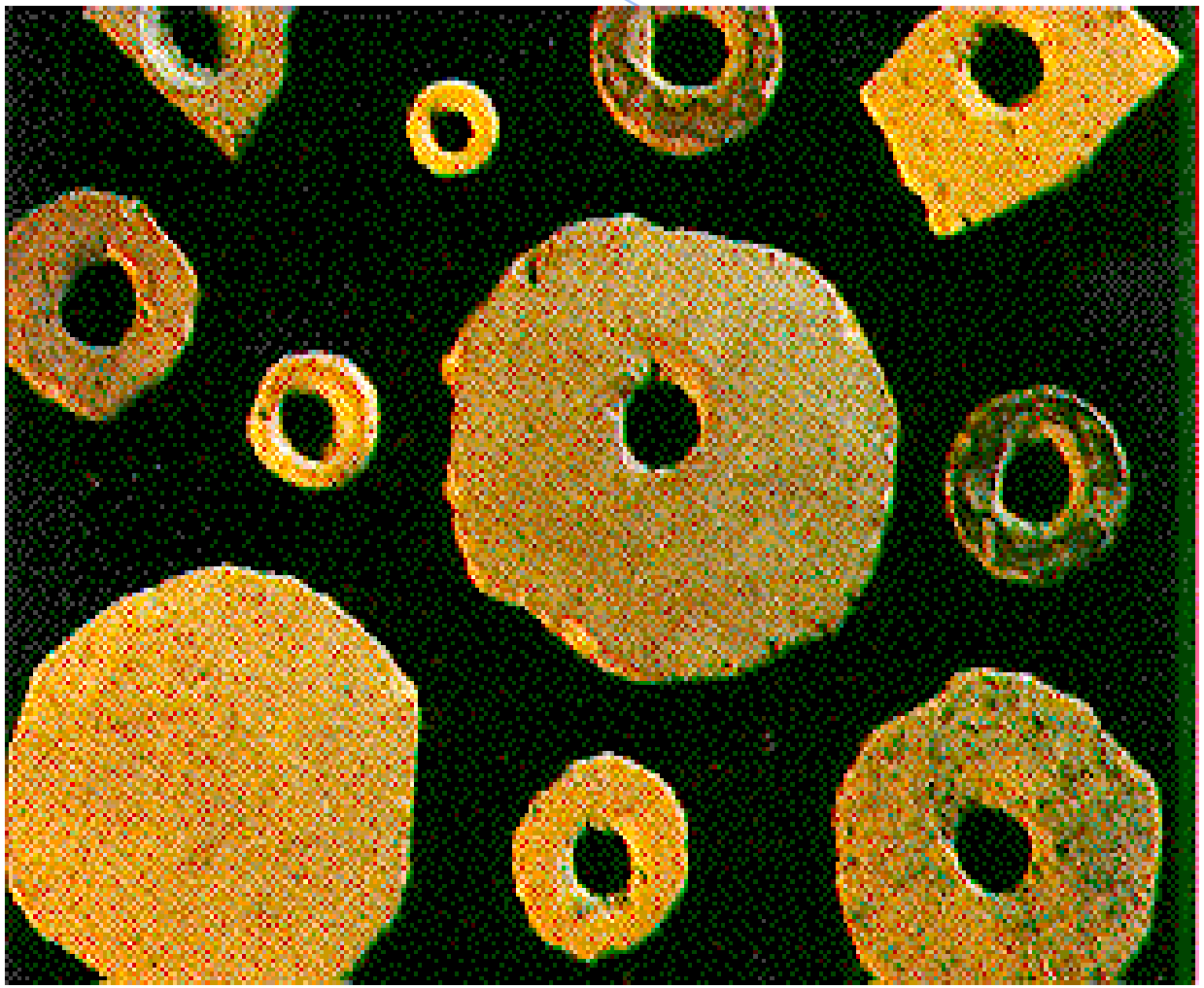


The Social Bond

As people began to live in larger groups, supported by cooperative group hunting, the need for expressing group identity intensified.

The Social Bond

There also appears to be a link between human creativity and sociability, evident in one of the earliest examples of ancient art: beadwork.

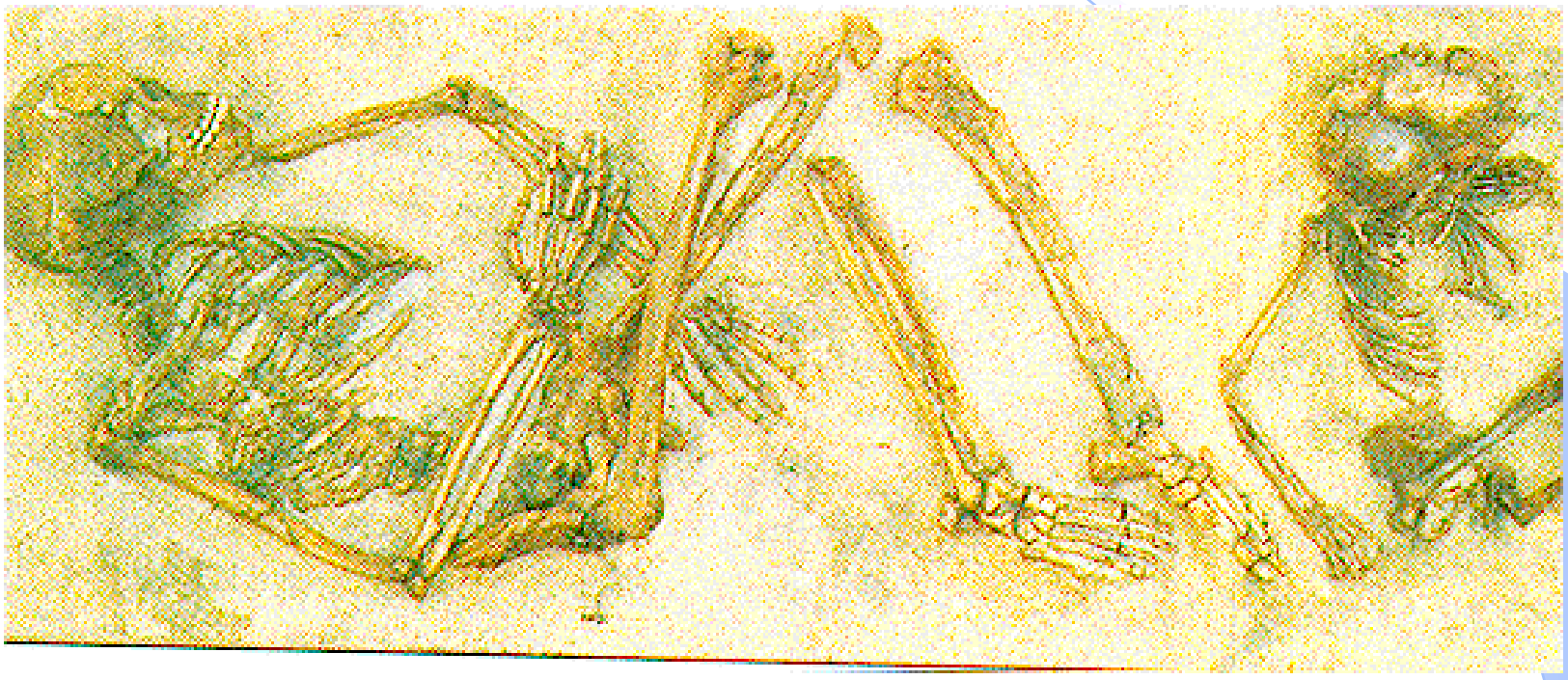


The Social Bond

Ivory beads were sown into clothing and pierced carnivore teeth were often used in belts and headbands. It probably took more than an hour to make each bead, such time-consuming process would never be done unless personal adornment was important for humans.

The Social Bond

The magnificent examples of ice age cave art appear to also have played a central role in the ceremonies and rituals of these early societies.

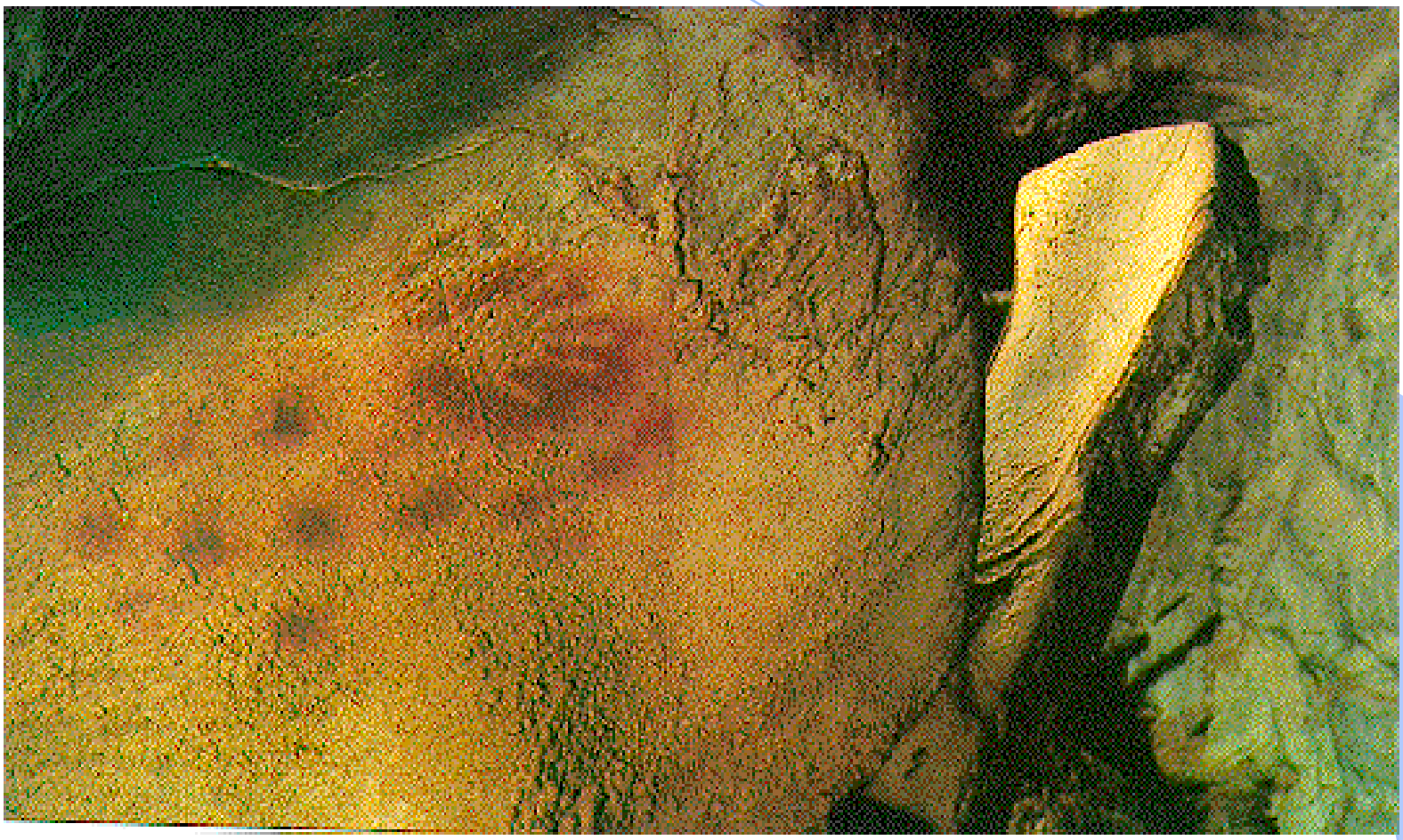


The Social Bond

At one site a woman is buried with her legs deliberately pulled up beneath her and a small child is lying at her feet, a pairing that suggests a spiritual concern about their being joined after death.

The Social Bond

All members of a society appear to have participated in the rituals in the caves as there are tiny handprints of children found as much as a mile deep within some ice age caves.



The Social Bond

The social setting implied by the cave art may be what made the so-called Great Leap Forward some 40,000 Y.A. possible in the first place. Throughout human history a few people may have worked a piece of bone or done an engraving on a rock. But unless that artifact played a role in the larger group it may well have been ignored or discarded.

The Social Bond

Sophisticated tool making and culture became prevalent only when human society grew to the point that such practices became important for survival—and social networks could spread the innovation among and between groups like wildfire.

The Neanderthals

The creative approach to exploiting the environment may have been a crucial difference between ancient humans and their evolutionary cousins, the Neanderthals. These powerfully built, large brained creatures arose in Europe some 300,000 YA and disappeared some 30,000 YA.

The Neanderthals

Scientists long thought Neanderthals were direct ancestors of modern humans but fossil finds of ancient humans that predate some Neanderthal fossils reveal the two species co-existed for thousands of years.

The Neanderthals

There is a long-standing debate over whether the species interbred with Homo Sapiens. This has still not been clearly established, though the preponderance of opinion is now that they did.

The Neanderthals

They have long had an image of being dim-witted hulking brutes, but recent findings indicate they were capable of sophisticated behaviors such as making complex stone tools, using fire, burying their dead, and possibly even speaking.

The Neanderthals

For example, the discovery of a four-walled structure Neanderthals built out of rock deep within a cave points to the ability to work with torches in the pitch black of a cave and to coordinate their activities.

The Neanderthals

For all of their intellectual abilities, however, Neanderthals appear to have subtle differences from Homo Sapiens in how they negotiated the world. For example, it appears that they stayed at sites for long periods of time. This inevitably leads to a depletion of food which means they had to work harder and harder for each meal.

The Neanderthals

Erik Trinkaus examined the teeth of Neanderthals and Homo Sapiens for telltale defects in the growth of the enamel, which indicate bouts of starvation.

The Neanderthals

He found that more than 70 percent of Neanderthals studies showed at least one defect, whereas the “teeth of the ancient humans were clean as a whistle.” The Neanderthal’s bones, too, indicate a life that emphasized brawn, the bones are thicker and heavier, and tend to be riddled with multiple minor fractures.

The Neanderthals

The injuries are reflected in their tool kit: the stone points they made are best suited to being held and thrust, rather than thrown, says Trinkaus. That presumably exposed them to naty kicks from their prey—and those broken bones.

The Neanderthals

The biggest difference between humans and Neanderthals—one that may have made all the difference in their creative culture—was how members of each species interacted among themselves.

The Neanderthals

Humans were using long-distance trading networks for the exchange of quality stone and other goods in Africa at least 100,000 YA. Similar trade networks appear to have existed among humans in Ice Age Europe.

References

- Diamond, Jared. 1997. *Guns, Germs, and Steel: The Fates of Human Societies.* New York: W. W. Norton.
- Wells, Spencer. 2010. *Pandora's Seed: The Unforeseen Cost of Civilization*. New York: Random House.