

MODERN HUMANS

Modern humans, people like ourselves—*Homo sapiens*—evolved in Africa between 200,000 and 150,000 years ago from *Homo heidelbergensis*. Their physical characteristics included a small face with a protruding chin, small teeth, a large rounded skull, and long and slender limb bones. Their living sites contain stone tools similar to the Mousterian tool technology and are securely dated to 120,000 years. The Middle East was one of the first destinations of the modern humans. Archaeological evidence indicates their lifestyle and behaviors were not much different from those of the Neandertals. Then, about 75,000 years ago (perhaps even earlier), evidence of new behaviors appears in several African sites.

When archaeologists look for evidence of modern human behavior, they consider the following: an elaborate tool assemblage with a wide variety of materials besides stone, such as bone, antler, and ivory. Some of these materials may have been transported over long distances, but the most important evidence is manifested in symbolic expression such as painting, sculpture, engraving, ornamentation, and ritual burials. The frequency of such creative activity exploded beginning about 50,000 years ago, in what has been called the "human revolution." The apparent gap of more than 25,000 years between the first innovations and this "revolution" is the topic of hot debate among archaeologists today.

Cultural innovations may have coincided with a drastic climate change. About 75,000 years ago, the earth entered a very cold phase

of the Ice Age. During this advance of the glaciers, there was a huge volcanic explosion on the island of Sumatra in Southeast Asia. More than a billion tons of ash shot into the atmosphere, obscuring sunlight and plunging the planet into an extremely cold climatic cycle. Animals and humans either had to migrate to warmer areas (some of the Neandertals may have retreated to the Middle East at this time) or adapt to the new conditions. Two sites in Africa show creative changes in the modern human food-getting technology—they went fishing!

In the African Rift Valley, at Katanga, Democratic Republic of the Congo, six carved bone harpoons have been found near the Semiliki River. They are barbed on one side with a circular groove on the end for tying to a shaft like a fishing harpoon. Also in the site were bones of many large catfish which had estimated weights of over 100 lbs. The site has been dated to be at least 75,000 years old. The significance of this site is that if the dating is correct, modern human behavior was beginning much earlier than previously recognized.

Blombos Cave is another African site which shows modern human behavior. The cave is located on the coast of South Africa in the Cape region and has been dated to 70,000 years ago. These people ate a wide variety of animals including the fur seal. The most significant food remains were shellfish (limpets, mussels, and turban shells) and many fish bones. An extraordinary find was a small slab of red ochre which had been decorated with incised geometric lines. This is one of the earliest dated examples of symbolic behavior yet found.

From here the story of our cultural advances accelerates. About 40,000 years ago, Europe, the land of the Neandertals, became

Moon calendar replica

A piece of reindeer antler, found in a cave in the Dordogne region of France, has marks on it that were made by a Cro-Magnon. Scientists think the marks represent a record of the phases of the moon. This may be the earliest known form of notation (the writing of symbols).
Replica by Nicolas Audebert
Age: 30,000 years



Incised ochre object

Blombos Cave, South Africa
Photo courtesy of the National Science Foundation

the destination of modern *Homo sapiens*. This period is called the Upper Paleolithic and has been likened in its technological advances to our own "information age." Not only in Europe, but wherever modern humans went, there are cave paintings, sculpture, bone and ivory carvings, the beginnings of notation, finely flaked blade tools, personal ornaments, fishing equipment, and burials with elaborate grave goods. Some scientists link this cultural explosion to the acquisition of fully articulate speech and symbolic language. Others link it to complex social organization and cooperation.

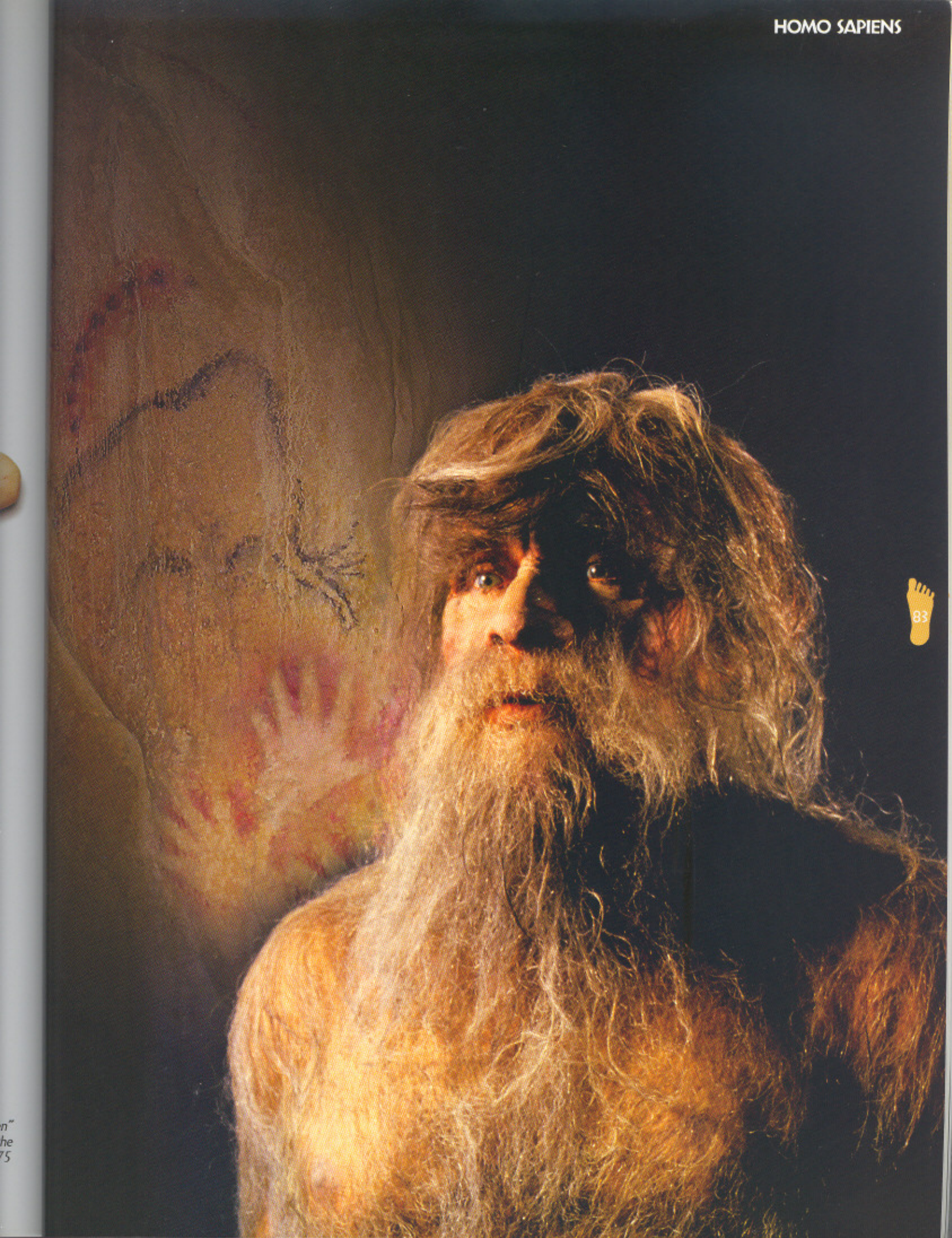


Glacier at Mont Blanc, France



Replica of a mammoth carved on mammoth tusk
La Madeleine Cave, France
Age: about 15,000 years

Figure from "Parade of Men" on display at the Museum of Man since 1973



POPULATING THE PLANET

Where did modern humans evolve?

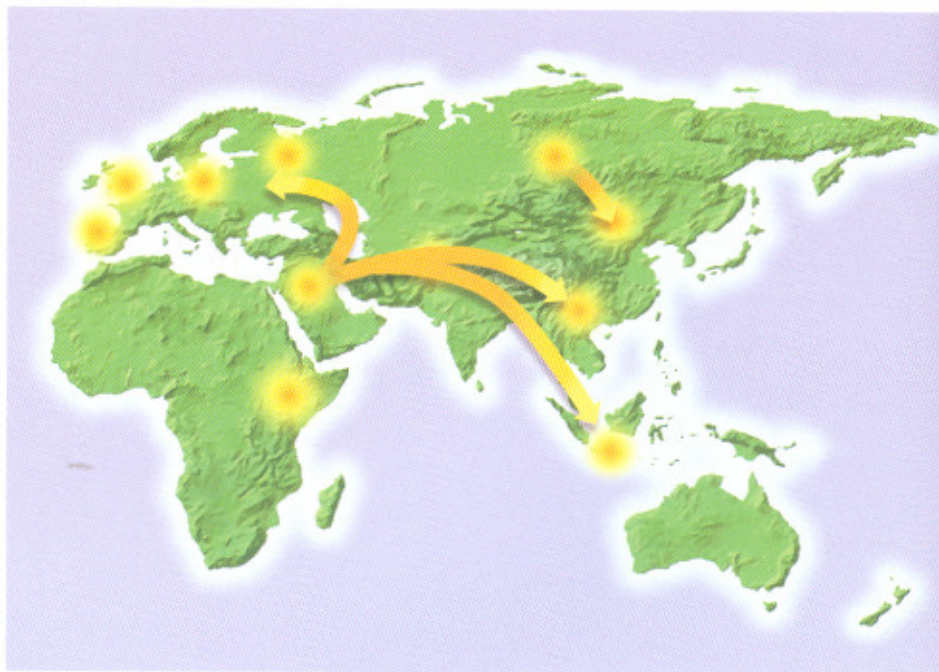
Paleoanthropologists have proposed and continue to debate three theories to explain how and when modern humans evolved and populated the planet.



Complete replacement model (above) has Africa as the origin for modern humans. There was no significant mixing between modern people and earlier hominids. Instead, modern humans replaced earlier hominids by either killing them or exploiting resources more effectively. DNA studies have supported this theory.

Regional continuity model (right) suggests that modern humans evolved in various places simultaneously. Migration and mixing among these populations maintained a single species.

Partial replacement model has elements of the other two theories. It suggests that modern humans evolved in Africa and moved into Europe and Asia. The disappearance of earlier hominids in Europe and Asia was the result of both replacement and interbreeding with modern humans.



14

TIMESTONE

Homo sapiens

Modern *Homo sapiens* evolved from *Homo heidelbergensis* between 200,000 and 150,000 years ago in Africa. At the same time Neandertals were living in Europe.

Fossils of modern *Homo sapiens* show a high, round, smooth skull. The face is straight with smaller teeth and jaws than those of earlier hominids. The fossils also show a strong projecting chin. Body proportions are different from those of the Neandertals. Modern humans evolved first in Africa, then migrated to the Near East, Asia, and Europe.



Cast of fossil adult male skull
Homo sapiens
Found in Skhul Cave,
Mount Carmel, Israel, in 1932 by
Theodore McCown and Hallam Movius, Jr.
Age: 90,000 years

UPPER PALEOLITHIC TOOLS 40,000 to 10,000 years ago

These tools have been found in Europe. A major advance in stone tools was the production of long, thin, parallel-sided blades with a large working edge. Toolmakers also used a variety of materials, including antler, bone, ivory, and wood. Scientists attribute this technology to Cro-Magnons. With these tools it was possible to fish and hunt for a wider variety of foods and bring down prey at greater distances.

Recently, scientists have found finely crafted tools of stone and bone in a cave in South Africa. They were made more than 70,000 years ago and show advanced toolmaking skills in Africa before *Homo sapiens* migrated to what is now Europe.

*Replicas of stone tools, harpoons, bone needle, baton and spearthrower
Found in Europe
Age: 40,000 to 10,000 years
Replicas by Bernard Ginelli*



"Cro
Artis



Modern *Homo sapiens*—Cro-Magnon



"Cro-Magnon" reconstruction
Artist: William Munns



Sculptural replica of
Cro-Magnon skull
Homo sapiens
Found in Cro-Magnon
rock shelter, Les Eyzies,
Dordogne, France,
in 1868 by workers
building a railway
Age: 30,000 years

The term "Cro-Magnon" describes both a specific skull and a cultural time period. During this time throughout the world, humans showed a burst of cultural activity with artistic objects, jewelry (made from bones, teeth, shell, and ivory), musical instruments (made from bones), and beautiful cave art.

This specimen shows a fully modern *Homo sapiens* from Europe. The most amazing feature of Cro-Magnon was not physical, but cultural—art, body ornaments, and the beginnings of astronomy and math.



CULTURAL EXPLOSION

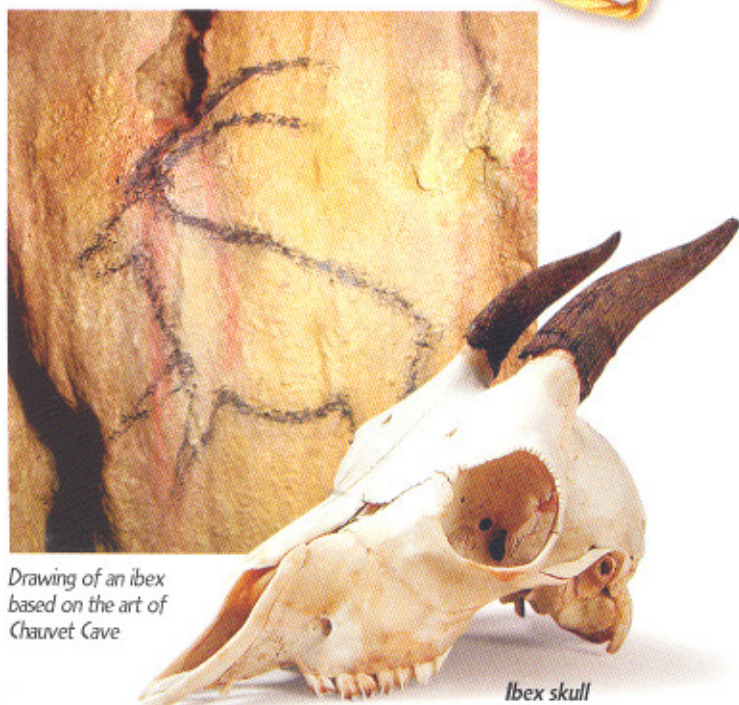
A creative species

In Europe, Asia, Africa, and Australia there was a surge of creativity about 40,000 years ago. These modern humans fashioned artwork and musical instruments and decorated cave walls and everyday objects. They carved human and animal figures out of stone and bone, and molded figures out of clay. They made necklaces, bracelets, and rings out of stone, eggshell, bone, teeth, antler, and shells. From bones they made whistles, flutes, bullroarers, and drums. Bullroarers, when whirled on a cord, make a deep humming sound, especially in caves. They may have been used to call people to ceremonies.

*Replica of a spearthrower
in the form of a mammoth
Bruniquel Rockshelter, France*



*Replica of a bullroarer
Reindeer antler
La Roche de Birol, Dordogne, France
Age: about 15,000 years
Replica by Nicolas Audebert*



*Drawing of an ibex
based on the art of
Chauvet Cave*

Ibex skull



CRO-MAGNON CAVE

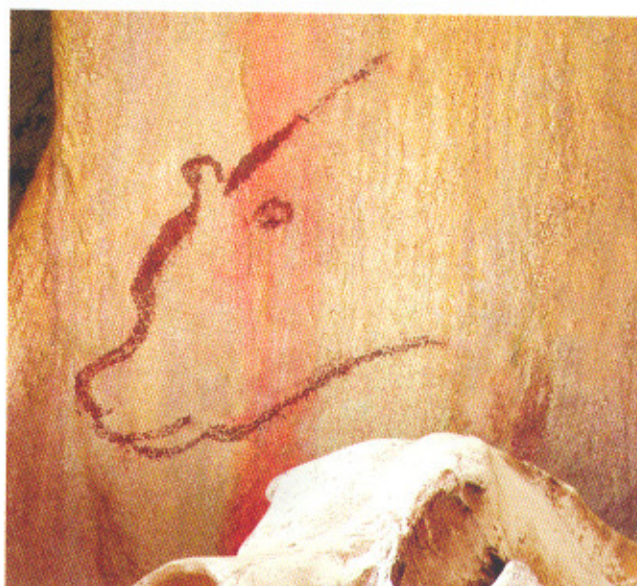
**Ice Age artists**

Within the chambers of Chauvet Cave are some of the world's oldest known paintings. The artwork shows hundreds of animals and more than a dozen species. There are images of horses, rhinoceroses, bison, mammoths, cave lions, and cave bears. The artists painted and drew with red ochre and charcoal or scratched into the soft walls.

The elegant art showed they had mastered the advanced techniques of shading and perspective.

Cave painting replicas

Inspired by Chauvet Cave in southern France, discovered in 1994 by Jean-Marie Chauvet, Eliette Brunel, and Christian Hillaire



Cast of
cave bear skull
Cave bears used

Chauvet Cave as a den, leaving footprints and deep wallows in the floor and scratches on the walls. The cave contains over 100 cave bear skulls, including one that a prehistoric human had set on a rock slab.

A Burst of Creativity

Artistic representation is one of the hallmarks of human culture. The ability to express oneself creatively is one of the defining human characteristics. This creative expression appears to have arisen approximately 50,000 years ago, at a time when modern humans are thought to have migrated out of Africa, and reached the far corners of the globe. These modern humans appear to have had the ability to manipulate symbols that earlier humans lacked. They decorated their bodies and adorned themselves with beads and animal bone pendants, painted animal figures on the walls of caves, and carved figurines out of various materials such as stone, ivory, bone, and antler.

One of the most intriguing types of artistic expression comes in the form of small female figurines with swollen breasts and voluptuous hips called Venus figurines, which rank amongst the most beautifully crafted art of the Upper Paleolithic time period. These small female figurines are made of a variety of materials such as sandstone, fired clay, and ivory. Whether the Venuses are naked or partially clothed, the unifying characteristic seems to be

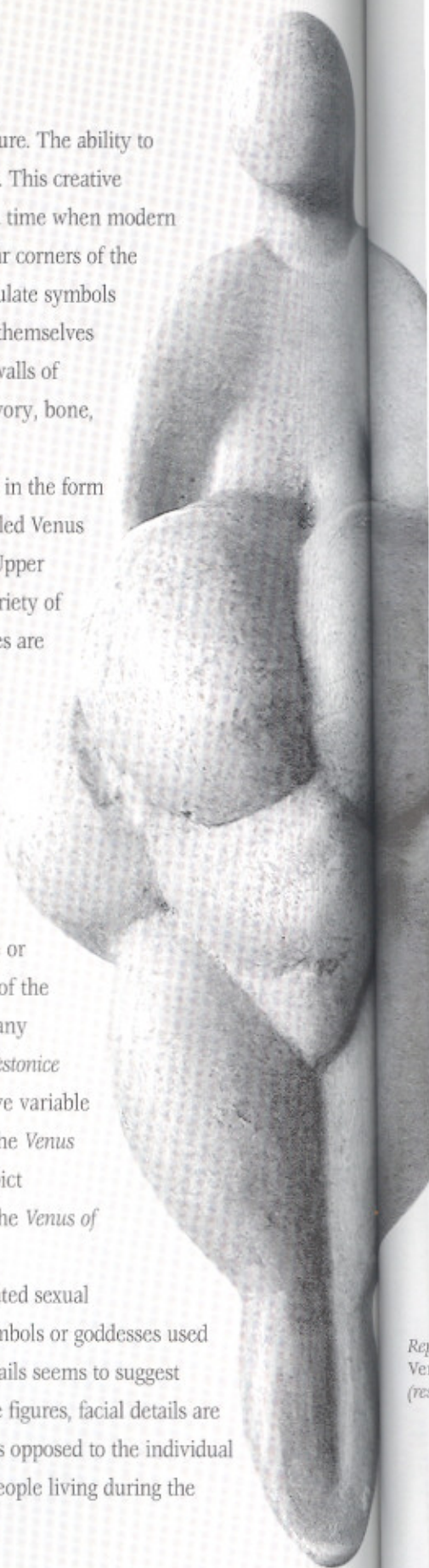
accentuated secondary sexual characteristics—vulvae, breasts, abdomens, and buttocks. The diversity amongst the figures gives reason to believe that each type of figurine had its own symbolic meaning.

Many Venus figurines are depicted with certain items of clothing, such as belts, skirts, and jewelry. The variability in the presence or absence of detailing and decoration on the heads of the figures has also been noted. Some figurines lack any realistic detailing at all (e.g., the *Venus of Dolní Věstonice* and the *Venus of Lespugue*), while other heads have variable realistic detailing of faces and hairdos, as seen in the *Venus*

of *Brassempouy*. Additionally, some figurines clearly depict headgear, as in the fiber-based woven cap or hat seen on the *Venus of Willendorf* figurine.

What can we learn from these Venus figurines? The exaggerated sexual characteristics of the Venuses seem to suggest their role as fertility symbols or goddesses used for various ritual purposes. The meaning behind the variable head details seems to suggest individual or social importance. When hats or caps are depicted on the figures, facial details are absent. This seems to suggest the social importance of the headgear, as opposed to the individual female's importance. We can also infer aspects of the lifestyle of the people living during the

Replica of
Venus of
Brassempouy

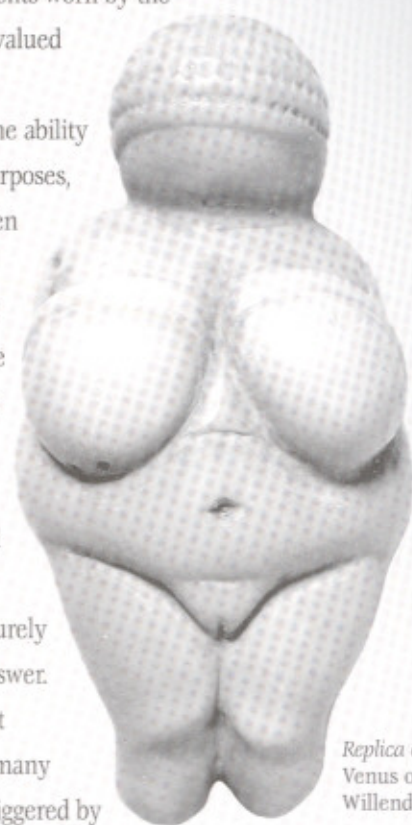


Rep
Ven
(res

times that these figurines were created. Venus figurines found in different areas depict different patterns of clothing and/or headgear. Due to the clothing found on the Venuses, we can deduce what the women in those areas were likely to wear. For instance, according to the figurines found across Europe, woven and plaited clothing and headgear made of plant materials were associated with some Upper Paleolithic women. In addition, the beautiful, labor-intensive detailing depicted in the woven garments worn by the Venus figurines shows that weaving and basket-making skills and their products were valued enough to be recorded artistically in the figurines.

Many anthropologists argue that earlier humans, namely Neandertals, had the ability to express themselves artistically. Bones that may have been incised for decorative purposes, ochre "crayons" which may have been used for decorating their bodies, or possibly even drawing on cave walls, and additional ornaments have recently been found in sites associated with Neandertals. However, these artifacts are very rare, and their symbolic meaning is questionable. The supposed artistic expression lacks the clarity seen in the art forms of modern humans, such as the Venus figurines. While new discoveries are bringing to light the question of whether earlier humans may have expressed themselves in art and ornament, it is clear that the explosion or "burst" of creativity came with modern *Homo sapiens*, and occurred during the Upper Paleolithic time period.

What circumstances spurred this burst of creativity? While surely a matter of speculation, some anthropologists refer to biology for the answer. There may have been an evolutionary change in the wiring of the brain that enabled humans to think more symbolically and artistically. On the other hand, many anthropologists feel that artistic expression may have been part of a social change triggered by formidable new environments. As modern humans spread out around the world, they must have met their many new challenges with increasingly intricate social systems. Artistic representation may have helped express these new social relations, whether by strengthening long-distance ties between groups, or as a method for modern humans to distinguish themselves from their neighbors (i.e., Neandertals) and strengthen their own cultural ties.



Replica of
Venus of
Willendorf

Replica of
Venus of Lespugue
(restored)



Tori D. Heflin, M.A.
Curator, Physical Anthropology
San Diego Museum of Man