

ART HISTORY

VOLUME ONE | FOURTH EDITION

MARILYN STOKSTAD

Judith Harris Murphy Distinguished Professor of Art History Emerita
The University of Kansas

MICHAEL W. COTHREN

Scheuer Family Professor of Humanities
Department of Art, Swarthmore College

CONTRIBUTORS

Frederick M. Asher, Douglass Bailey, David A. Binkley,
Claudia L. Brittenham, Claudia Brown, Patricia J. Darish,
Patricia J. Graham, and D. Fairchild Ruggles

Prentice Hall

Boston Columbus Indianapolis New York San Francisco Upper Saddle River
Amsterdam Cape Town Dubai London Madrid Milan Munich Paris Montréal Toronto
Delhi Mexico City São Paulo Sydney Hong Kong Seoul Singapore Taipei Tokyo



1-1 • SPOTTED HORSES AND HUMAN HANDS Pech-Merle Cave. Dordogne, France.
Horses 25,000–24,000 BCE; hands c. 15,000 BCE. Paint on limestone, individual horses over 5' (1.5 m) in length.

PREHISTORIC ART

Two horses are positioned back to back on the wall of a chamber within the Pech-Merle Cave, located in France's Dordogne region; one of the horses is shown in the detail at left (FIG. 1-1). The head of the horse follows the natural shape of the rock. Black dots surround areas of both horses and cover their bodies. At a later date, a large fish (58 inches long and almost impossible to see) was painted in red on top of them. Yet the painters left more than images of animals, fish, and geometric shapes; they left their own handprints in various places around the animals. These images, and many others hidden in chambers at the ends of long, narrow passages within the cave, connect us to an almost unimaginably ancient world of 25,000 BCE.

Prehistory includes all of human existence before the emergence of writing, though long before that defining moment people were carving objects, painting images, and creating shelters and other structures. Thirty thousand years ago our ancestors were not making "works of art" and there were no "artists" as we understand the term today. They were flaking,

chipping, and polishing flints into spear points, knives, and scrapers, not into sculptures, however pleasing these artifacts are to the eye and to the touch. Wall paintings, too, must have seemed vitally important to their makers in terms of everyday survival.

For art historians, archaeologists, and anthropologists, prehistoric art provides a significant clue—along with fossils, pollen, and artifacts—to understanding early human life and culture. Although specialists continue to discover more about when and how these works were created, they may never be able to tell us why they were made. In fact, there may be no single meaning or use for any one image on a cave wall; cave art probably meant different things to the different people who saw it, depending on their age, experience, and specific needs and desires. The sculpture, paintings, and structures that survive are only a tiny fraction of what must have been created over a very long time span. The conclusions and interpretations drawn from them are only hypotheses, making prehistoric art one of the most speculative, but exciting, areas of art history.

LEARN ABOUT IT

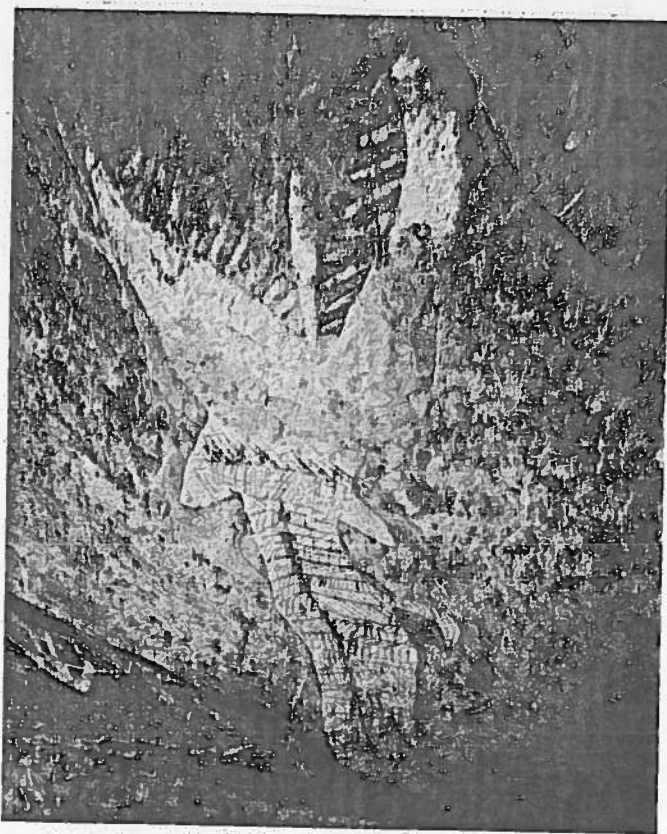
- 1.1 Examine the origins of art in the prehistoric past.
- 1.2 Discover the location and motifs of Paleolithic cave art and assess the range of scholarly interpretations for them.
- 1.3 Investigate the early use of architecture in domestic and sacred contexts, including megalithic monuments such as Stonehenge.
- 1.4 Explore the use and meaning of human figurines in the Paleolithic and Neolithic periods.
- 1.5 Trace the emergence of pottery making and metalworking and examine the earliest works made of fired clay and hammered gold.

HEAR MORE: Listen to an audio file of your chapter www.myartslab.com

THE STONE AGE

How and when modern humans evolved is the subject of ongoing debate, but anthropologists now agree that the species called *homo sapiens* appeared about 400,000 years ago, and that the subspecies to which we belong, *homo sapiens sapiens* (usually referred to as modern humans), evolved as early as 120,000 years ago. Based on archaeological evidence, it is now clear that modern humans spread from Africa across Asia, into Europe, and finally to Australia and the Americas. This vast movement of people took place between 100,000 and 35,000 years ago.

Scholars began the systematic study of prehistory only about 200 years ago. Nineteenth-century archaeologists, struck by the wealth of stone tools, weapons, and figures found at ancient sites, named the whole period of early human development the Stone Age. Today, researchers divide the Stone Age into the Paleolithic (from the Greek *paleo*-, "old," and *lithos*-, "stone") and the Neolithic (from the Greek *neo*-, "new") periods. The Paleolithic period is divided into three phases reflecting the relative position of objects found in the layers of excavation: Lower (the oldest), Middle, and Upper (the most recent). In some places archaeologists can identify a transitional, or Mesolithic (from the Greek *meso*-, "middle") period.



1-2 • RAINBOW SERPENT ROCK

Western Arnhem Land, Australia. Appearing in Australia as early as 6000 BCE, images of the Rainbow Serpent play a role in rituals and legends of the creation of human beings, the generation of rains, storms, and floods, and the reproductive power of nature and people.

The dates for the transition from Paleolithic to Neolithic vary with geography and with local environmental and social circumstances. For some of the places discussed in this chapter, such as Western Europe, the Neolithic way of living did not emerge until 3000 BCE; in others, such as the Near East, it appeared as early as 8000 BCE. Archaeologists mark time in so many years ago, or BP ("before present"). However, to ensure consistent style throughout the book, which reflects the usage of art historians, this chapter uses BCE (before the Common Era) and CE (the Common Era) to mark time.

Much is yet to be discovered about prehistoric art. In Australia, some of the world's very oldest images have been dated to between 50,000 and 40,000 years ago, and the tradition of transient communities who marked the land in complex, yet stunningly beautiful ways continues into historical time. In western Arnhem land (FIG. 1-2), rock art images of the Rainbow Serpent have their origins in prehistory, and were perhaps first created during times of substantial changes in the environment. Africa, as well, is home to ancient rock art in both its northern and southern regions. In all cases, archaeologists associate the arrival of modern humans in these regions with the advent of image making.

Indeed, it is the cognitive capability to create and recognize symbols and imagery that sets us as modern humans apart from all of our predecessors and from all of our contemporary animal relatives. We are defined as a species by our abilities to make and understand art. This chapter focuses primarily on the rich traditions of prehistoric European art from the Paleolithic and Neolithic periods and into the Bronze Age (MAP 1-1). Later chapters consider the prehistoric art of other continents and cultures, such as the Americas (Chapter 12), and sub-Saharan Africa (Chapter 13).

THE PALEOLITHIC PERIOD

Researchers found that human beings made tools long before they made what today we call "art." Art, in the sense of image making, is the hallmark of the Upper Paleolithic period and the emergence of our subspecies, *homo sapiens sapiens*. Representational images are seen in the archaeological record beginning about 38,000 BCE in Australia, Africa, and Europe. Before that time, during the Lower Paleolithic period in Africa, early humans made tools by flaking and chipping (knapping) flint pebbles into blades and scrapers with sharp edges. Dating to 2.5 million years ago, the earliest objects made by our human ancestors were simple stone tools, some with sharp edges, that were used to cut animal skin and meat and bash open bones to access marrow, and also to cut wood and soft plant materials. These first tools have been found at sites such as Olduvai Gorge in Tanzania. Although not art, they are important as they document a critical development in our evolution: humans' ability to transform the world around them into specific tools and objects that could be used to complete a task.



MAP 1-1 • PREHISTORIC EUROPE

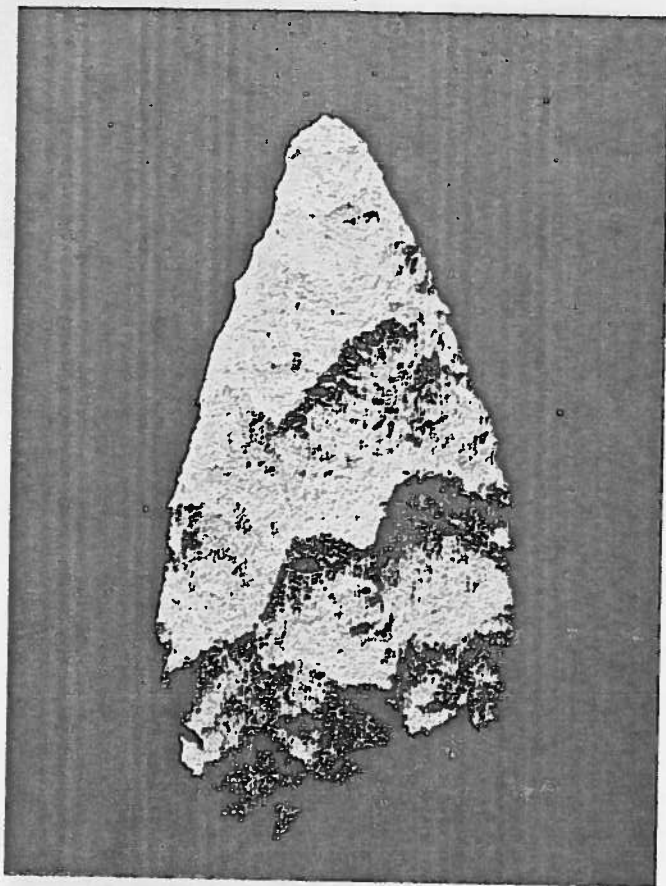
As the Ice Age glaciers receded, Paleolithic, Neolithic, Bronze Age, and Iron Age settlements increased from south to north.

By 1.65 million years ago, significant changes in our ancestors' cognitive abilities and manual dexterity can be seen in sophisticated stone tools, such as the teardrop-shaped hand-axes (FIG. 1-3) that have been found at sites across Eurasia. These extraordinary objects, symmetrical in form and produced by a complex multistep process, were long thought of as nothing more than tools (or perhaps even as weapons), but the most recent analysis suggests that they had a social function as well. Some sites (as at Olorgesailie in Kenya) contain hundreds of hand-axes, far more than would have been needed in functional terms, suggesting that they served to announce an individual's skills, status, and standing in his or her community. Although these ancient hand-axes are clearly not art in the representational sense, it is important to see them in terms of performance and process, concepts that though central to modern Western art also have deep prehistoric roots.

Evolutionary changes took place over time and by 400,000 years ago, during the late Middle Paleolithic period, a *homo sapiens*

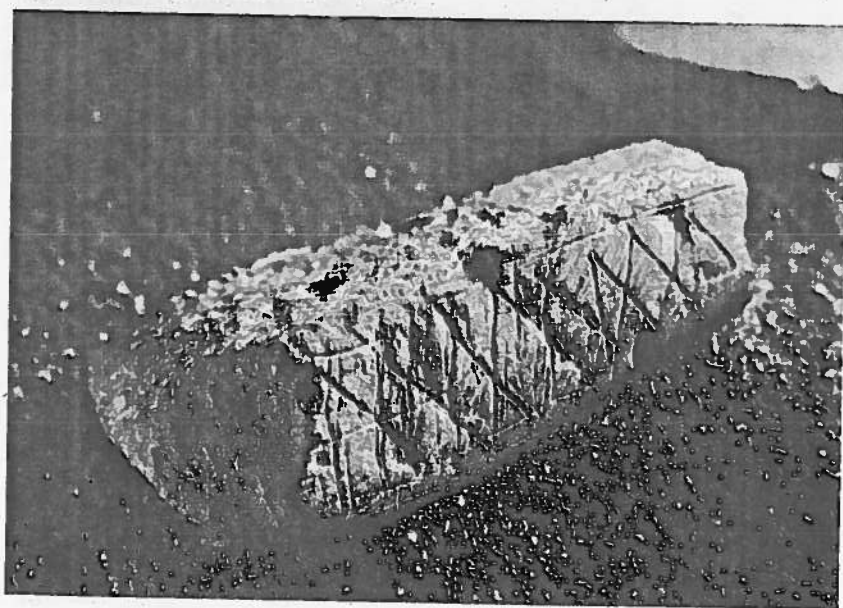
subspecies called Neanderthal inhabited Europe. Its members used a wider range of stone tools and may have carefully buried their dead with funerary offerings. Neanderthals survived for thousands of years and overlapped with modern humans, though the two groups did not interbreed. *Homo sapiens sapiens*, who had evolved and spread out of Africa some 300,000 years after the Neanderthals, eventually replaced them, probably between 38,000 and 33,000 BCE.

The critical abilities that set modern humans apart from all of their predecessors were cognitive ones; indeed the fact that *homo sapiens sapiens*, as a species, outlasted Neanderthals was because they had the mental capacity to solve problems of human survival. The new cognitive abilities included improvements in recognizing and benefiting from variations in the natural environment, and in managing social networking and alliance making (skills that enabled organized hunting). The most important new ability, however, was the capacity to think symbolically: to create



13 • PALEOLITHIC HAND-AXE

From Isimila Korongo, Tanzania. 60,000 years ago. Stone, height 10" (25.4 cm).



1-4 • DECORATED OCHER

From Blombos Cave. Southern Cape coast, South Africa. 77,000 years ago.

representational analogies between one person, animal, or object, and another, and to recognize and remember those analogies. This cognitive development marks the evolutionary origin of art.

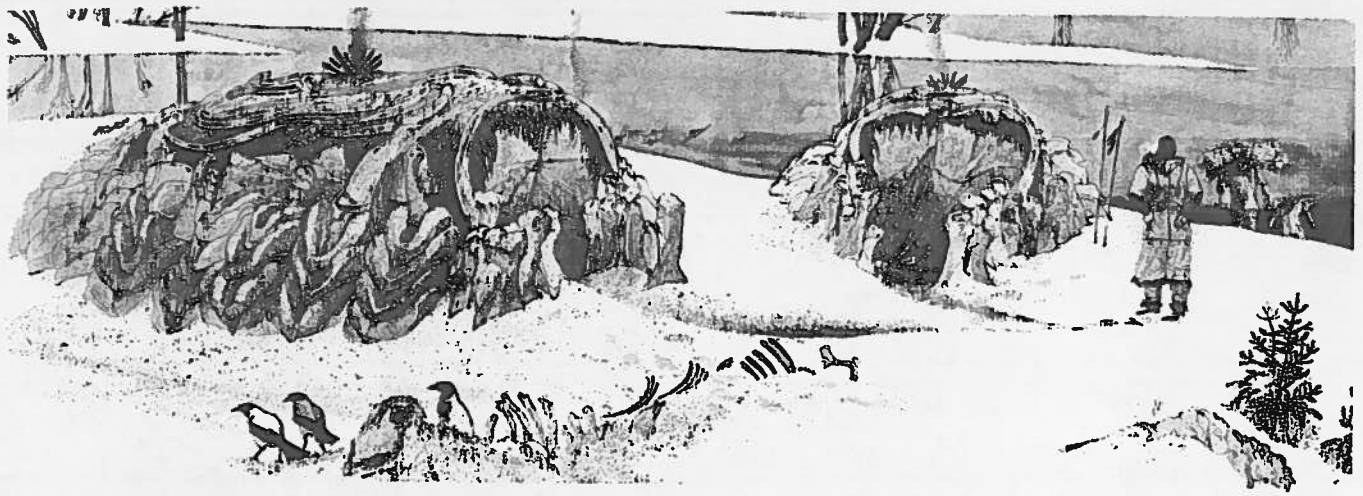
The world's earliest pieces of art come from South Africa: two 77,000-year-old, engraved blocks of red ocher (probably used as crayons) found in the Blombos Cave (FIG. 1-4). Both the blocks are engraved in an identical way with cross-hatched lines on their sides. Archaeologists argue that the similarity of the engraved patterns means these two pieces were intentionally made and decorated following a common pattern. Thousands of fragments of ocher have been discovered at Blombos and there is little doubt that people were using it to draw patterns and images, the remains of which have long since disappeared. Although it is impossible to prove, it is highly likely that the ocher was used to decorate peoples' bodies as well as to color objects such as tools or shell ornaments. Indeed, in an earlier layer on the same site, archaeologists uncovered more than 36 shells, each of which had been perforated so that it could be hung from a string or thong, or attached to clothing or a person's hair; these shells would have been used to decorate the body. An ostrich eggshell bead came from the same site and would have served the same purpose. The importance of the Blombos finds cannot be overstated: Here we have our early ancestors, probably modern humans but possibly even their predecessors, using the earth's raw materials to decorate themselves with jewelry (with the shells) and body art (with the ocher).

SHELTER OR ARCHITECTURE?

The term architecture has been applied to the enclosure of spaces with at least some aesthetic intent. Some people object to its use in connection with prehistoric improvisations, but building even a simple shelter requires a degree of imagination and planning

deserving of the name "architecture." In the Upper Paleolithic period, humans in some regions used great ingenuity to build shelters that were far from simple. In woodlands, evidence of floors indicates that circular or oval huts of light branches and hides were built. These measured as much as 15-20 feet in diameter. (Modern tents to accommodate six people vary from 10- by 11-foot ovals to 14- by 7-foot rooms.)

In the treeless grasslands of Upper Paleolithic Russia and Ukraine, builders created settlements of up to ten houses using the bones of the now extinct woolly mammoth, whose long, curving tusks made excellent roof supports and arched door openings (FIG. 1-5). This bone framework was probably covered with animal hides and turf. Most activities centered around the inside fire pit, or hearth, where food was prepared and tools were fashioned. Larger houses might have had more than one hearth and spaces were set aside for



1-5 • RECONSTRUCTION DRAWING OF MAMMOTH-BONE HOUSES
Ukraine. c. 16,000–10,000 BCE.



specific uses—working stone, making clothing, sleeping, and dumping refuse. Inside the largest dwelling on a site in Mezhirich, Ukraine, archaeologists found 15 small hearths that still contained ashes and charred bones left by the last occupants. Some people also colored their floors with powdered ochre in shades that ranged from yellow to red to brown. These Upper Paleolithic structures are important because of their early date: The widespread appearance of durable architecture concentrated in village communities did not occur until the beginning of the Neolithic period in the Near East and southeastern Europe.

ARTIFACTS OR WORKS OF ART?

As early as 30,000 BCE small figures, or figurines, of people and animals made of bone, ivory, stone, and clay appeared in Europe and Asia. Today we interpret such self-contained, three-dimensional pieces as examples of **sculpture in the round**. Prehistoric carvers also produced relief sculpture in stone, bone, and ivory. In **relief sculpture**, the surrounding material is carved away, forming a background that sets off the projecting figure.

THE LION-HUMAN. An early and puzzling example of a sculpture in the round is a human figure—probably male—with a feline head (FIG. 1-6), made about 30,000–26,000 BCE. Archaeologists excavating at Hohlenstein-Stadel, Germany, found broken pieces of ivory (from a mammoth tusk) that they realized were parts of an entire figure. Nearly a foot tall, this remarkable statue surpasses most early figurines in size and complexity. Instead of copying what he or she saw in nature, the carver created a unique creature, part human and part beast. Was the figure intended to represent a person wearing a ritual lion mask? Or has the man taken on the

1-6 • LION-HUMAN

From Hohlenstein-Stadel, Germany. c. 30,000–26,000 BCE. Mammoth ivory, height 11 $\frac{1}{8}$ " (29.6 cm). Ulmer Museum, Ulm, Germany.



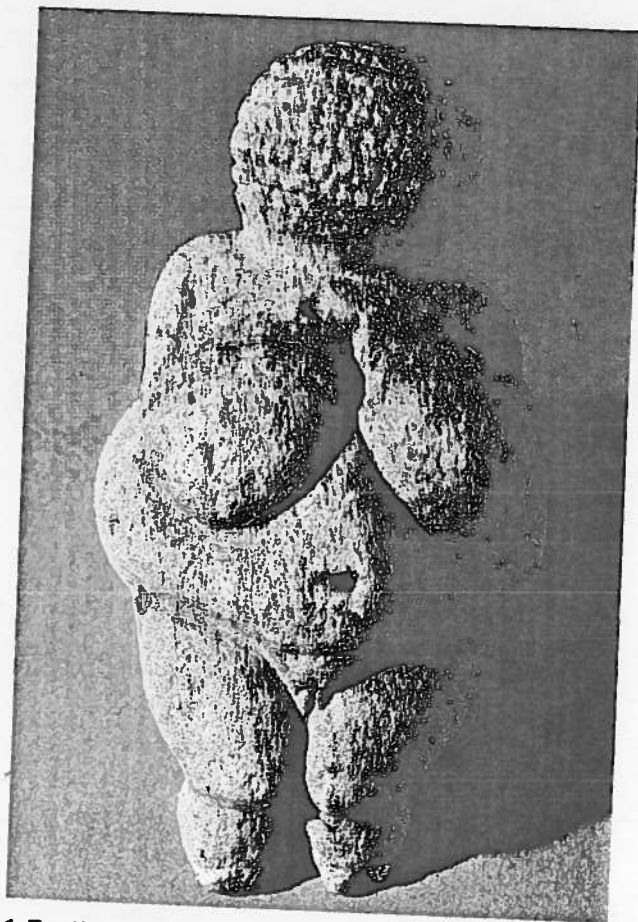
The Power of Naming

Words are only symbols for ideas, and it is no coincidence that the origins of language and of art are often linked in our evolutionary development. But the very words we invent—or our ancestors invented—reveal a certain view of the world and can shape our thinking. Today, we exert the power of naming when we select a name for a baby or call a friend by a nickname. Our ideas about art can also be affected by names, even the ones used for captions in a book. Before the twentieth century, artists usually did not name, or title, their works. Names were eventually supplied by the works' owners or by art historians writing about them, and thus often express the cultural prejudices of the labelers or of the times in which they lived.

An excellent example of such distortion is the names given to the hundreds of small prehistoric statues of women that have been found. Earlier scholars called them by the Roman name Venus. For example,

the sculpture in FIGURE 1-7 was once called the *Venus of Willendorf* after the place where it was found. Using the name of the Roman goddess of love and beauty sent a message that this figure was associated with religious belief, that it represented an ideal of womanhood, and that it was one of a long line of images of "classical" feminine beauty. In a short time, most similar works of sculpture from the Upper Paleolithic period came to be known as Venus figures. The name was repeated so often that even experts began to assume that the statues had to be fertility figures and Mother Goddesses, although there is no proof that this was so.

Our ability to understand and interpret works of art creatively is easily compromised by distracting labels. Calling a prehistoric figure a woman instead of Venus encourages us to think about the sculpture in new and different ways.

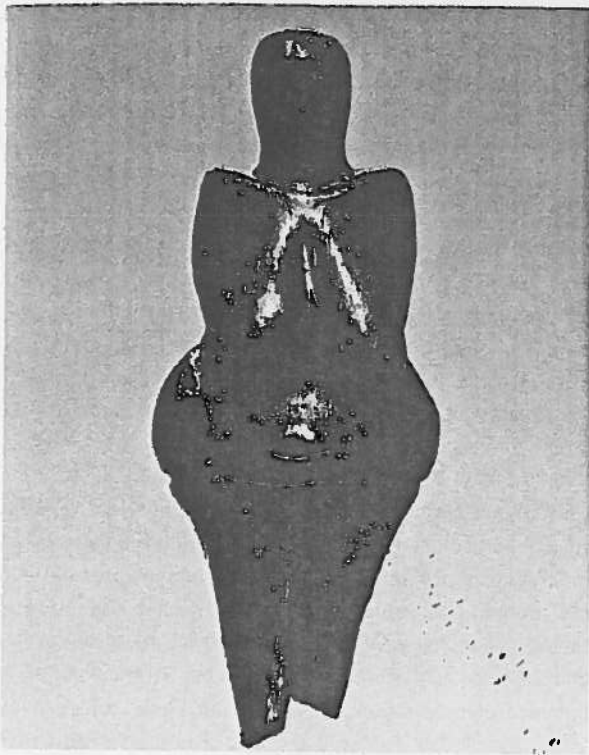


1-7 • WOMAN FROM WILLENDORF
From Austria. c. 24,000 BCE. Limestone, height 4 $\frac{3}{8}$ " (11 cm).
Naturhistorisches Museum, Vienna.

appearance of an animal? Archaeologists now think that the people who lived at this time held very different ideas (from our twenty-first-century ones) about what it meant to be a human and how humans were distinct from animals; it is quite possible that they thought of animals and humans as parts of one common group of beings who shared the world. What is absolutely clear is that the Lion-Human shows highly complex thinking and creative imagination: the uniquely human ability to conceive and represent a creature never seen in nature.

FEMALE FIGURES. While a number of figurines representing men have been found recently, most human figures from the Upper Paleolithic period are female. The most famous of these, the **WOMAN FROM WILLENDORF** (FIG. 1-7), from Austria, dates from about 24,000 BCE (see "The Power of Naming," above). Carved from limestone and originally colored with red ocher, the statuette's swelling, rounded forms make it seem much larger than its actual 4 $\frac{3}{8}$ -inch height. The sculptor exaggerated the figure's female attributes by giving it pendulous breasts, a big belly with a deep navel (a natural indentation in the stone), wide hips, dimpled knees and buttocks, and solid thighs. By carving a woman with a well-nourished body, the artist may have been expressing health and fertility, which could ensure the ability to produce strong children, thus guaranteeing the survival of the clan.

The most recent analysis of the Paleolithic female sculptures has replaced the traditional fertility interpretation with more nuanced understandings of how and why the human figure is represented in this way, and who may have had these kinds of objects made. According to archaeologist Clive Gamble, these little sculptures were subtle forms of nonverbal communication among



1-8 • WOMAN FROM DOLNÍ VEŠTONICE

From Moravia, Czech Republic. 23,000 BCE. Fired clay, $4\frac{1}{4} \times 1\frac{1}{16}$ " (11 x 4.3 cm). Moravske Museum, Brno, Czech Republic.

alliance
small isolated groups of Paleolithic people spread out across vast regions. Gamble noted the tremendous (and unusual) similarity in the shapes of figures, even those found in widely distant parts of Europe. He suggested that when groups of Paleolithic hunter-gatherers did occasionally meet up and interact, the female statues may have been among several signature objects that signaled whether a group was friendly and acceptable for interaction and, probably, for mating. As symbols, these figures would have provided reassurance of shared values about the body, and their size would have demanded engagement at a close personal level. It is not a coincidence, then, that the largest production of these types of Paleolithic figurine occurred during a period when climatic conditions were at their worst and the need for interaction and alliance building would have been at its greatest.

More provocative is art historian Leroy McDermott's suggestion that the body-shape of the female figures tell us a great deal about who made them. Noticing the bulbous shape of the figures and the fact that many do not have clearly defined feet, McDermott argued that the perspective was that of a pregnant woman looking down at her own body. McDermott's theory that the figures were sculpted by pregnant women and were depictions of their own bodies offers an intriguing vision of women as artists, in control of how they were represented.

Another figure, found in the Czech Republic, the **WOMAN FROM DOLNÍ VEŠTONICE** (FIG. 1-8), takes our understanding of

these objects further still. The site of Dolní Veštonice is important because it marks a very early date (23,000 BCE) for humans to use fire to make durable objects out of mixtures of water and soil. What makes the figures from this site and those from other sites in the region (Pavlov and Předmosti) unusual is their method of manufacture. By mixing the soil with water—to a very particular recipe—and then placing the wet figures in a hot kiln to bake, the makers were not intending to create durable, well-fired statues. On the contrary, the recipe used and the firing procedure followed tell us that the intention was to make the figures explode in the kilns before the firing process was complete, and before a "successful" figure could be produced. Indeed, the finds at these sites support this interpretation: There are very few complete figures, but numerous fragments that bear the traces of explosions at high temperatures. The Dolní Veštonice fragments are records of performance and process art in their rawest and earliest forms.

Another remarkable female image, discovered in the Grotte du Pape in Brassempouy, France, is the tiny ivory head known as the **WOMAN FROM BRASSEMPOUY** (FIG. 1-9). Though the finders did not record its archaeological context, recent studies prove it to



1-9 • WOMAN FROM BRASSEMPOUY

From Grotte du Pape, Brassempouy, Landes, France. Probably c. 30,000 BCE. Ivory, height $1\frac{1}{4}$ " (3.6 cm). Musée des Antiquités Nationales, Saint-Germain-en-Laye, France.

be authentic and date it as early as 30,000 BCE. The carver captured the essence of a head, or what psychologists call the **memory image**—those generalized elements that reside in our standard memory of a human head. An egg shape rests atop a long neck, a wide nose and strongly defined browline suggest deep-set eyes, and an engraved square patterning may be hair or a headdress. The image is an abstraction (what has come to be known as **abstract art**): the reduction of shapes and appearances to basic yet recognizable forms that are not intended to be exact replications of nature. The result in this case looks uncannily modern to the contemporary viewer. Today, when such a piece is isolated in a museum case or as a book illustration we enjoy it as an aesthetic object, but we lose its original cultural context.

CAVE PAINTING

Art in Europe entered a rich and sophisticated phase after 30,000 BCE, when images were painted on the walls of caves in central and southern France and northern Spain. No one knew of the existence of prehistoric cave paintings until one day in 1879, when a young girl, exploring with her father in Altamira in northern Spain, crawled through a small opening in the ground and found herself in a chamber whose ceiling was covered with painted animals (SEE FIG. 1–13). Her father, a lawyer and amateur archaeologist, searched the rest of the cave, told authorities about the remarkable find, and published his discovery the following year. Few people believed that these amazing works could have been made by “primitive” people, and the scientific community declared the paintings a hoax. They were accepted as authentic only in 1902, after many other cave paintings, drawings, and engravings had been discovered at other places in northern Spain and in France.

THE MEANING OF CAVE PAINTINGS. What caused people to paint such dramatic imagery on the walls of caves? The idea that human beings have an inherent desire to decorate themselves and their surroundings—that an aesthetic sense is somehow innate to the human species—found ready acceptance in the nineteenth century. Many believed that people create art for the sheer love of beauty. Scientists now agree that human beings have an aesthetic impulse, but the effort required to accomplish the great cave paintings suggests their creators were motivated by more than simple pleasure (see “Prehistoric Wall Painting,” page 10). Since the discovery at Altamira, anthropologists and art historians have devised several hypotheses to explain the existence of cave art. Like the search for the meaning of prehistoric female figurines, these explanations depend on the cultural views of those who advance them.

In the early twentieth century it was believed that art has a social function and that aesthetics are culturally relative. It was proposed that the cave paintings might be products both of rites to strengthen clan bonds and of ceremonies to enhance the fertility of animals used for food. In 1903, French archaeologist Salomon Reinach suggested that cave paintings were expressions of

sympathetic magic (the idea, for instance, that a picture of a reclining bison would ensure that hunters found their prey asleep). Abbé Henri Breuil took these ideas further and concluded that caves were used as places of worship and were the settings for initiation rites. In the second half of the twentieth century, scholars rejected these ideas and based their interpretations on rigorous scientific methods and current social theory. André Leroi-Gourhan and Annette Laming-Emperaire, for example, dismissed the sympathetic magic theory because statistical analysis of debris from human settlements revealed that the animals used most frequently for food were not the ones traditionally portrayed in caves.

Researchers continue to discover new cave images and to correct earlier errors of fact or interpretation. A study of the Altamira Cave in the 1980s led anthropologist Leslie G. Freeman to conclude that the artists had faithfully represented a herd of bison during the mating season. Instead of being dead, asleep, or disabled—as earlier observers had thought—the animals were dust-wallowing, common behavior during the mating season. Similar thinking has led to a more recent interpretation of cave art by archaeologist Steve Mithen. In his detailed study of the motifs of the art and its placement within caves, Mithen argued that hoofprints, patterns of animal feces, and hide colorings were recorded and used as a text to teach novice hunters within a group about the seasonal appearance and behavior of the animals they hunted. The fact that so much cave art is hidden deep in almost inaccessible parts of caves (indeed, the fact that it is placed within caves at all), suggested to Mithen that this knowledge was intended for a privileged group and that certain individuals or groups were excluded from acquiring that knowledge.

South African rock-art expert David Lewis-Williams suggests a different interpretation. Using a deep comparative knowledge of art made by hunter-gatherer communities that are still in existence, Lewis-Williams has argued that Upper Paleolithic cave art is best understood in terms of shamanism: the belief that certain people (shamans) can travel outside of their bodies in order to mediate between the worlds of the living and the spirits. Traveling under the ground as a spirit, particularly within caves, or conceptually within the stone walls of the cave, Upper Paleolithic shamans would have participated in ceremonies that involved hallucinations. Images conceived during this trancelike state would likely combine recognizable (the animals) and abstract (the non-representational) symbols. In addition, Lewis-Williams interprets the stenciled human handprints found on the cave walls alongside the other marks as traces of the nonshaman participants in the ritual reaching towards and connecting with the shaman spirits traveling within the rock.

Although hypotheses that seek to explain cave art have changed and evolved over time, there has always been agreement that decorated caves must have had a special meaning because people returned to them time after time over many generations, in some cases over thousands of years. Perhaps Upper Paleolithic cave art was the product of rituals intended to gain the favor of the

supernatural. Perhaps because much of the art was made deep inside the caves and nearly inaccessible, its significance may have had less to do with the finished painting than with the very act of creation. Artifacts and footprints (such as those found at Chauvet, below, and Le Tuc d'Audoubert, FIG. 1-14) suggest that the subterranean galleries, which were far from living quarters, had a religious or magical function. Perhaps the experience of exploring the cave may have been significant to the image-makers. Musical instruments, such as bone flutes, have been found in the caves, implying that even acoustical properties may have had a role to play.

CHAUVET. The earliest known site of prehistoric cave paintings, discovered in December 1994, is the Chauvet Cave (called after one of the persons who found it) near Vallon-Pont-d'Arc in south-eastern France—a tantalizing trove of hundreds of paintings (FIG. 1-10). The most dramatic of the images depict grazing, running, or resting animals, including wild horses, bison, mammoths, bears, panthers, owls, deer, aurochs, woolly rhinoceroses, and wild goats (or ibex). Also included are occasional humans, both male and female, many handprints, and hundreds of geometric markings such as grids, circles, and dots. Footprints in the Chauvet Cave, left in soft clay by a child, go to a “room” containing bear skulls. The charcoal used to draw the rhinos has been radiocarbon-dated to 32,410 $\pm$ 720 years before the present.

LASCAUX. The best-known cave paintings are those found in 1940 at Lascaux, in the Dordogne region of southern France (FIG. 1-11 and SEE FIG. 1-12). They have been dated to about 15,000 BCE. Opened to the public after World War II, the prehistoric “museum” at Lascaux soon became one of the most popular tourist sites in France. Too popular, because the visitors brought heat, humidity, exhaled carbon dioxide, and other contaminants. The cave was closed to the public in 1963 so that conservators could battle an aggressive fungus. Eventually they won, but instead of reopening the site authorities created a facsimile of it. Visitors at what is called Lascaux II may now view copies of the paintings without harming the precious originals.

The scenes they view are truly remarkable. The Lascaux painters depicted cows, bulls, horses, and deer along the natural ledges of the rock, where the smooth white limestone of the ceiling and upper wall meets a rougher surface below. They also utilized the curving wall to suggest space. Lascaux has about 600 paintings and 1,500 engravings. Ibex, a bear, engraved felines, and a woolly rhinoceros have also been found. The animals appear singly, in rows, face to face, tail to tail, and even painted on top of one another. Their most characteristic features have been emphasized. Horns, eyes, and hooves are shown as seen from the front, yet heads and bodies are rendered in profile in a system known as **composite pose**. Even when their poses are exaggerated or



1-10 • WALL PAINTING WITH HORSES, RHINOCEROSES, AND AUROCHS
Chauvet Cave. Vallon-Pont-d'Arc, Ardèche Gorge, France. c. 32,000–30,000 BCE. Paint on limestone.

SEE MORE: View a video about cave painting www.myartslab.com

TECHNIQUE I Prehistoric Wall Painting

In a dark cave, working by the light of an animal-fat lamp, an artist chews a piece of charcoal to dilute it with saliva and water. Then he blows out the mixture on the surface of a wall, using his hand as a stencil. The drawing demonstrates how cave archaeologist Michel Lorblanchet and his assistant used the step-by-step process of the original makers of a cave painting at Pech-Merle (SEE FIG. 1-1) in France created a complex design of spotted horses.

By turning himself into a human spray can, Lorblanchet can produce clear lines on the rough stone surface much more easily than he could with a brush. To create the line of a horse's back, with its clean upper edge and blurry lower one, he blows pigment below his hand. To capture its angular rump, he places his hand vertically against the wall, holding it slightly curved. To produce the sharpest lines, such as those of the upper hind leg and tail, he places his hands side by side and blows between them. To create the forelegs and the hair on the horses' bellies, he fingerpaints. A hole punched in a piece of leather serves as a stencil for the horses' spots. It takes Lorblanchet only 32 hours to reproduce the Pech-Merle painting of spotted horses, his speed suggesting that a single artist created the

original (perhaps with the help of an assistant to mix pigments and tend the lamp).

Homo sapiens sapiens artists used three painting techniques: the spraying demonstrated by Lorblanchet, drawing with fingers or blocks of ocher, and daubing with a paintbrush made of hair or moss. In some places in prehistoric caves three stages of image creation can be seen:

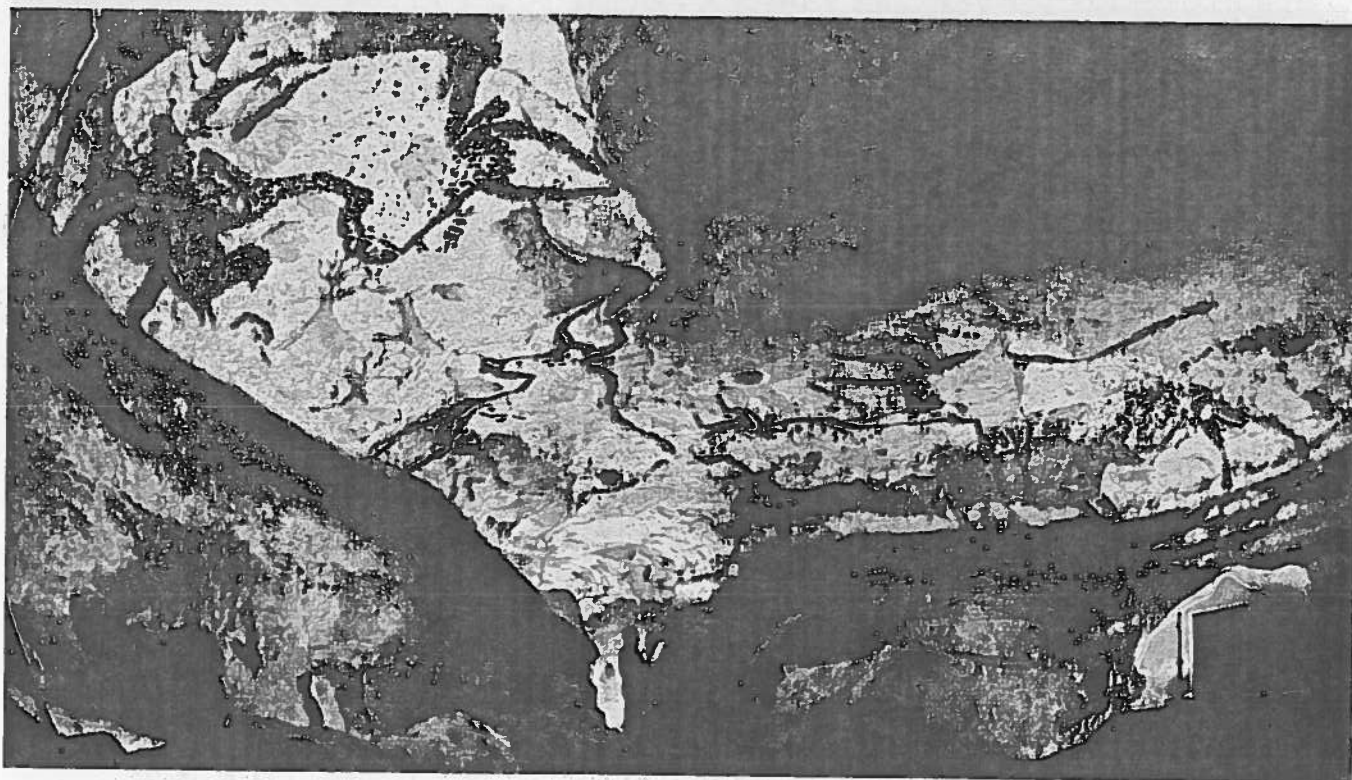
engraved lines using flakes of flint, followed by a color wash of ocher and manganese, and a final engraving to emphasize shapes and details.



distorted, the animals are full of life and energy, and the accuracy in the drawing of their silhouettes, or outlines, is remarkable.

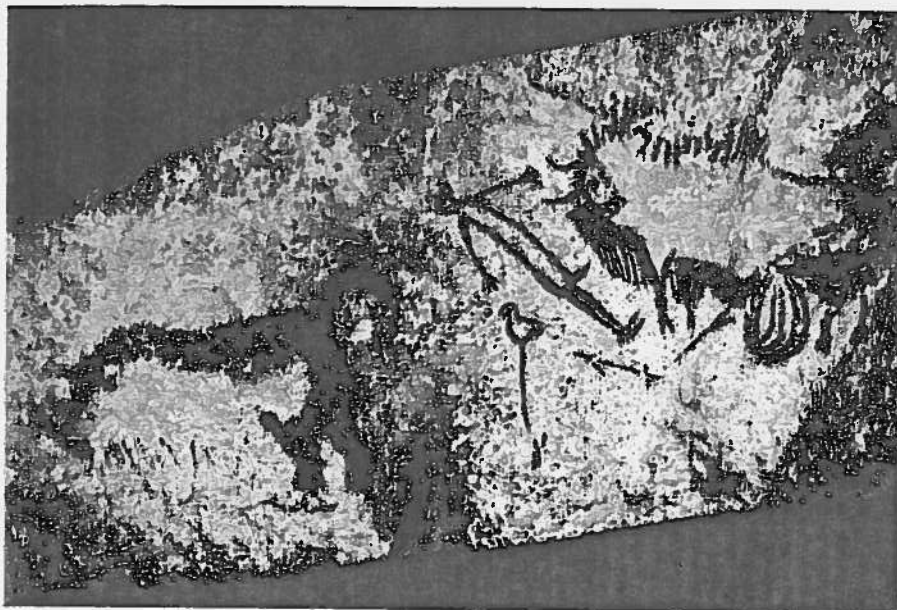
Painters worked not only in large caverns, but also far back in the smallest chambers and recesses, many of which are almost

inaccessible today. Small stone lamps found in such caves—over 100 lamps have been found at Lascaux—indicate that the artists worked in flickering light from burning animal fat (SEE FIG. 1-15). (Although 1 pound of fat would burn for 24 hours and produce no



1-11 • HALL OF BULLS

Lascaux Cave, Dordogne, France. c. 15,000 BCE. Paint on limestone, length of largest auroch (bull) 18' (5.50 m).



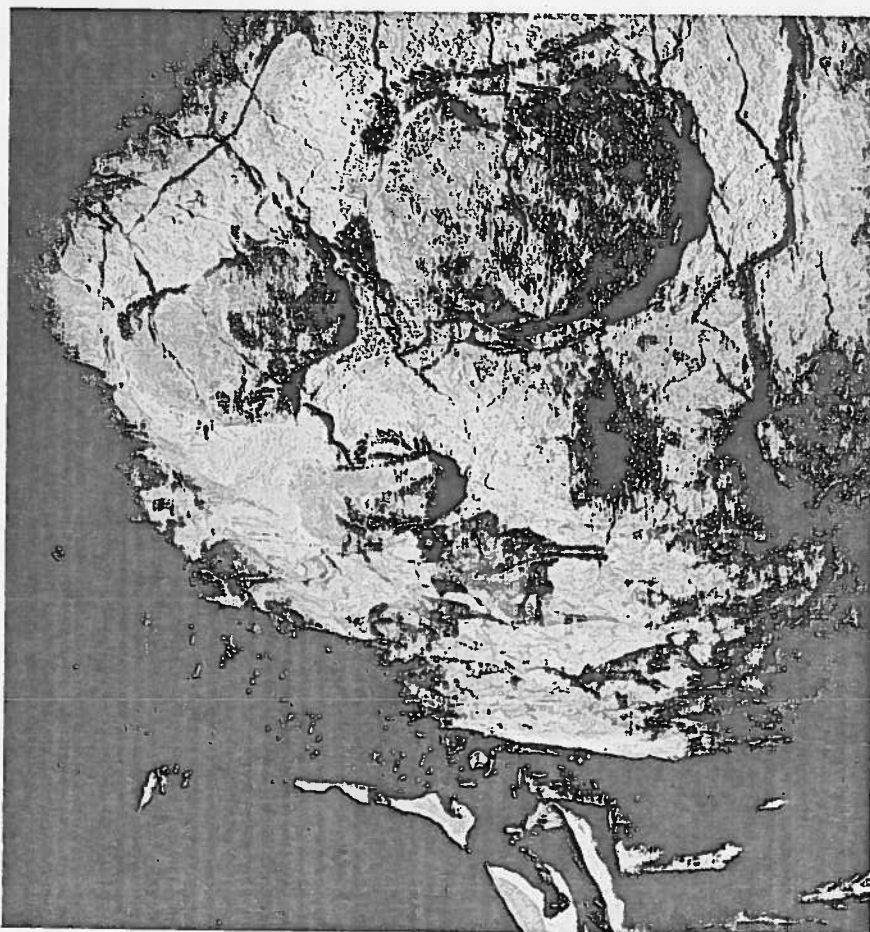
1-12 • BIRD-HEADED MAN WITH BISON

Shaft scene in Lascaux Cave. c. 15,000 BCE. Paint on limestone, length approx. 9' (2.75 m).

soot, the light would not have been as strong as that created by a candle.)

One scene at Lascaux was discovered in a remote setting on a wall at the bottom of a 16-foot shaft that contained a stone lamp and spears. The scene is unusual because it is the only painting in the cave complex that seems to tell a story (FIG. 1-12), and it is stylistically different from the other paintings at Lascaux. A figure who could be a hunter, greatly simplified in form but recognizably male and with the head of a bird or wearing a bird's-head mask, appears to be lying on the ground. A great bison looms above him. Below him lie a staff, or baton, and a spear-thrower (*atlatl*)—a device that allowed hunters to throw farther and with greater force—the outer end of which has been carved in the shape of a bird. The long, diagonal line slanting across the bison's hindquarters may be a spear. The bison has been disemboweled and will soon die. To the left of the cleft in the wall a woolly rhinoceros seems to run off. Why did the artist portray the man as only a sticklike figure when the bison was rendered with such accurate detail? Does the painting illustrate a story or a myth regarding the death of a hero? Is it a record of an actual event? The painting may also depict the vision of a shaman.

ALTAMIRA. The cave paintings at Altamira, near Santander in the Cantabrian Mountains in Spain—the first to be discovered and attributed to the Upper Paleolithic period—have been recently dated to about 12,500 BCE (see “How Early Art is Dated,” page 12). The Altamira artists created sculptural effects by painting over and around natural irregularities in the cave walls and ceilings. To produce the herd of bison on the ceiling of the main cavern (FIG. 1-13), they used rich, red and brown ocher to paint the large areas of the animals' shoulders, backs, and flanks, then sharpened the contours of the rocks and added the details of the legs, tails, heads, and horns in black and brown. They mixed yellow, and brown from iron-based ocher to make the red tones, and they derived black from manganese or charcoal.



1-13 • BISON

Ceiling of a cave at Altamira, Spain. c. 12,500 BCE. Paint on limestone, length approx. 8'3" (2.5 m).

RECOVERING THE PAST | How Early Art Is Dated

Since the first discoveries at Altamira, archaeologists have developed increasingly sophisticated ways of dating cave paintings and other objects. Today, they primarily use two approaches to determine an artifact's age. **Relative dating** relies on the chronological relationships among objects in a single excavation or among several sites. If archaeologists have determined, for example, that pottery types A, B, and C follow each other chronologically at one site, they can apply that knowledge to another site. Even if type B is the only pottery present, it can still be assigned a relative date. **Absolute dating** aims to determine a precise span of calendar years in which an artifact was created.

The most accurate method of absolute dating is **radiometric dating**, which measures the degree to which radioactive materials have disintegrated over time. Used for dating organic (plant or animal) materials—including some pigments used in cave paintings—one radiometric method measures a carbon isotope called radiocarbon, or carbon-14, which is constantly replenished in a living organism. When an organism dies, it stops absorbing carbon-14 and starts to lose its store of the isotope at a predictable rate. Under the right circumstances, the amount of carbon-14 remaining in organic material can tell us how long ago an organism died.

This method has serious drawbacks for dating works of art. Using carbon-14 dating on a carved antler or wood sculpture shows only

when the animal died or when the tree was cut down, not when the artist created the work using those materials. Also, some part of the object must be destroyed in order to conduct this kind of test—something that is never a desirable procedure to conduct on a work of art. For this reason, researchers frequently test organic materials found in the same context as the work of art rather than in the work itself.

Radiocarbon dating is most accurate for materials no more than 30,000 to 40,000 years old. **Potassium-argon dating**, which measures the decay of a radioactive potassium isotope into a stable isotope of argon, an inert gas, is most reliable with materials more than a million years old. Two newer techniques have been used since the mid 1980s. **Thermo-luminescence dating** measures the irradiation of the crystal structure of a material subjected to fire, such as pottery, and the soil in which it is found, determined by the luminescence produced when a sample is heated. **Electron spin resonance** techniques involve using a magnetic field and microwave irradiation to date a material such as tooth enamel and the soil surrounding it.

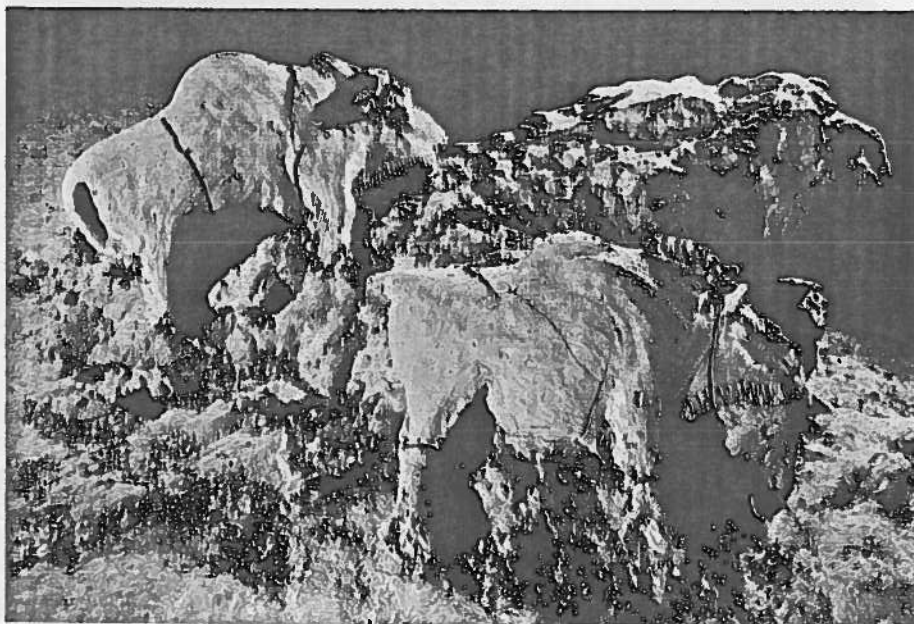
Recent experiments have helped to date cave paintings with increasing precision. Radiocarbon analysis has determined, for example, that the animal images at Lascaux are 17,000 years old—to be more precise, 17,070 years plus or minus 130 years.

CAVE SCULPTURES

Caves were sometimes adorned with relief sculpture as well as paintings. At Altamira, an artist simply heightened the resemblance of a natural projecting rock to a similar and familiar animal form. Other reliefs were created by **modeling**, or shaping, the damp clay

of the cave's floor. An excellent example of such work in clay (dating to 13,000 BCE) is preserved at Le Tuc d'Audoubert, south of the Dordogne region of France. Here the sculptor created two bison leaning against a ridge of rock (FIG. 1-14). Although the beasts are modeled in very high relief (they extend well forward from the background), they display the same conventions as in earlier painted ones, with emphasis on the broad masses of the meat-bearing flanks and shoulders. To make the animals even more lifelike, their creator engraved short parallel lines below their necks to represent their shaggy coats. Numerous small footprints found in the clay floor of this cave suggest that important group rites took place here.

An aesthetic sense and the ability to express it in a variety of ways are among the characteristics unique to *homo sapiens sapiens*. Lamps found in caves provide an example of objects that were both functional and aesthetically pleasing. Some were carved in simple abstract shapes; others were adorned with engraved images, like one found at La Mouthe, France (FIG. 1-15). The maker decorated its underside with an



1-14 • BISON

Le Tuc d'Audoubert, France. c. 13,000 BCE. Unbaked clay, length 25" (63.5 cm) and 24" (60.9 cm).



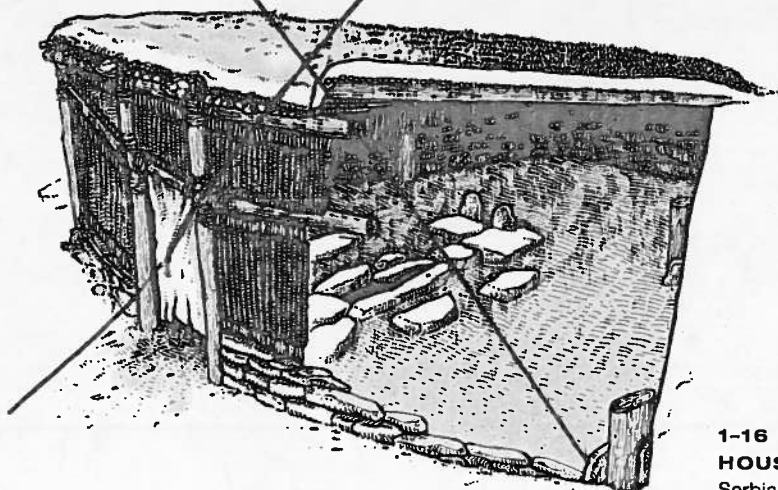
1-15 • LAMP WITH IBEX DESIGN

From La Mouthe Cave, Dordogne, France. c. 15,000–13,000 BCE.
Engraved stone. Musée des Antiquités Nationales, Saint-Germain-en-Laye, France.

ibex. The animal's distinctive head is shown in profile, its sweeping horns reflecting the curved outline of the lamp itself. Objects such as this were made by people whose survival depended upon their skill at hunting animals and gathering wild grains and other edible plants. But a change was already under way that would completely alter human existence.

THE NEOLITHIC PERIOD

Today, advances in technology, medicine, transportation, and electronic communication change human experience in a generation. Many thousands of years ago, change took place much more slowly. In the tenth millennium BCE the world had already entered the present interglacial period, and our modern climate was taking shape. The world was warming up, and this affected the distribution, density, and stability of plant and animal life and



marine and aquatic resources. However, the Ice Age ended so gradually and unevenly among regions that people could not have known what was happening.

One of the fundamental changes that took place in our prehistoric past was in the relationship people had with their environment. After millennia of established interactions between people and wild plants and animals (ranging from opportunistic foraging to well-scheduled gathering and collecting), people gradually started to exert increasing control over the land and its resources. Seen from the modern perspective, this change in economy (archaeologists use "economy" to refer to the ways people gather or produce food) seems abrupt and complete. Different communities adopted and adapted new sets of technologies, skills, and plant and animal species that allowed them to produce food: This is the origin of plant and animal domestication. Wheat and barley were cultivated; sheep, goats, cattle, and pigs were bred. This new economy appeared at different rates and to varying degrees of completeness in different parts of the Near East and Europe, and no community relied exclusively on the cultivation of plants or on breeding animals. Instead they balanced hunting, gathering, farming, and animal breeding in order to maintain a steady food supply.

ARCHITECTURE

At the same time as these new food technologies and species appeared, people began to establish stronger, more lasting connections to particular parts of the landscape. The beginnings of architecture in Europe are marked by people building their social environments by constructing simple but durable structures made of clay, mud, dung, and straw interwoven among wooden posts. While some of these buildings were simple huts, used for no more than a season at a time, others were much more substantial, with foundations made of stone, set into trenches and supporting walls of large timbers. Some buildings were constructed from simple bricks made of clay, mud, and straw given shape by a rectangular mold and then dried in the sun. Regardless of the technique used, the result was the same: people developed a new attachment to the land, and with settlement came a new kind of social life.

At the site of Lepenski Vir, on the Serbian banks of the Danube River, rows of trapezoidal buildings made of wooden posts, branches, mud, and clay (but with stone foundations and stone-faced hearths) face the river from which the inhabitants took large river fish (FIG. 1-16). Although this site dates to between 6300–5500 BCE, there is little evidence for the domesticated plants and animals one might expect at this time and in association with architecture. Archaeologists found human burials under the floors of these structures as well as in the spaces

1-16 • RECONSTRUCTION OF LEPENSKI VIR HOUSE/SHRINE

Serbia. 6000 BCE.