NATURAL HISTORY 11/00 pp. 52-57

At Chauvet Cave, 32,000-yearold paintings tell of extinct big cats and the artists with whom they shared their domain.

By Craig Packer and Jean Clottes

When Lions Ruled France

African lions stare at Cape Buffalo in the Serengeti Plain, above. A painting in Chauvet Cave records their ancient counterparts, right, watching a herd of European bison with similar concentration

It is a rainy October morning in the south of France. The two of us, a field biologist and an archaeologist, are preparing to enter Chauvet Cave, above the Ardéche River. The purpose of our visit is to share thoughts and observations on both the Paleolithic paintings in the caves and their subjects-great cats that have been extinct for more than 12,000 years. As we approach Chauvet, we admire the tall gray limestone cliffs that flank the winding river as it twists its way down to the broad valley of the Rhone. The landscape is lush with low trees and shrubs, and the canyon walls are honeycombed with shallow caves and deep caverns. That humans lived in Europe long before the last glaciation is well known, but the vivid and abundant evidence of their early presence in this region is still startling. Artwork and human remains indicate that some 40,000 years ago, our ancestors shared this landscape with rhinoceroses, bison, mammoths, aurochs, wild horses, and giant elks. In those days, the Ardéche region had a climate like that of southern Sweden today, and the low-lying flatlands around the river were covered with grass. People lived in small communities of perhaps twenty to thirty individuals, scattered thirty to forty miles apart. Using spearheads made from reindeer antlers, they

hunted large ungulates, mostly reindeer and bison.

But people were not the only hunters of these large, hoofed mammals. Wolves, leopards, hyenas, and cave lions also preyed upon them. Cave lions *(Panthera atrox)* were a different species from the lion we know today in Africa and India. Larger than Siberian tigers, cave lions once ranged throughout the Northern Hemisphere. Their bones are common in the La Brea tar pits of Los Angeles, and mummified remains have been found in Alaska and Siberia. Chauvet Cave contains an extensive record of cave lions' behavior - thanks to the talented artists who settled there 32,000 years ago. Before its discovery in 1994, only a few images of lions were known from European caves. Chauvet is one of the most profusely decorated Paleolithic caves in the world and is unique in its large gallery of lion portraits. [See "Rhinos and Lions and Bears (Oh, My!)," *Natural History,* May 1995. Perhaps the most famous landmark in the Ardéche is the Pont d'Arc, a natural arch formed by a sharp meander in the river that eventually cuts through a narrow limestone wall hundreds of thousands of years ago. The river now passes under the resultant rock bridge, which is a half mile from the cave. A wide loop of its former course filled in and became a fertile pasture near the water's edge, attracting large numbers of herbivores during dry months. Drawn to the area by the abundant game, local hunting tribes were probably impressed by the spectacular rock formations; unusual geological features still inspire stories and origin myths among the world's tribal peoples. We know from their engravings that ancient hunters saw resemblances between unusually shaped rocks and the figures of mammoths and bison. Perhaps they perceived some of the giant rock formations here as animals turned to stone. At any rate, the significance of the cave as a major sanctuary may well have been related to its proximity to the Pont d'Arc.

A large male depicted in Chauvet Cave, above, hunkers down to the female's height - courtship behavior still practiced by modem lions, above right.

The opening of the cave is situated about two hundred feet above the riverbed, and the cliff beneath the entrance is steep. Anyone sitting in this opening would have had a clear view of the valley without the risk of being surprised by an approaching animal or human. Perhaps its inaccessibility is also the reason the cave remained so long undiscovered by moderns.

Cave bears (the size of modern-day Kodiak bears) hibernated in Chauvet, and their bones still litter the floor, but humans left behind few signs other than the spectacular animals they drew on the walls in ocher or charcoal or by scratching into the soft wall surfaces. Chauvet Cave contains hundreds of paintings – some rudimentary, some astonishingly vivid. Those made in charcoal have been dated to 35,000 years ago.

But today we are putting aside our scientific concerns of dating and preservation and are attempting to let the paintings reveal their stories to us. What can they tell us about the extinct lions and the humans who observed them? We switch on the lights of our miners' helmets and begin to make our way inside.

The drawings near the entrance are rendered in ocher and are sketchy and crude. Some seem schematic rather than representative of living, breathing animals. Some might even be impromptu flights of fantasy. Passing deeper into the cave, we can see occasional smudges of charcoal on the walls where someone rubbed a pine-branch torch 27,000 years ago while heading for the cavern's older paintings-artistic masterpieces created thousands of years earlier. Sidestepping the ancient bear skulls on the floor, we carefully make our way along the thin strip of black plastic that constitutes the scientists' and

conservators' only approved path. (Although the cave is in a remarkable state preservation, like all Paleolithic sites it is fragile and easily damaged if someone steps on a delicate impression or rubs against a drawing. Chauvet Cave is closed to the public, since even the breath of too many visitors could alter the cave's climate and foster molds that would destroy the ancient artwork.)

Soon we arrive at a series of charcoal renderings in the middle gallery. Next to a striking set of four horse heads, plus various aurochs, bison, and rhinoceroses, we can see two cave lions, one of which is snarling while in a pose of submission. With a few simple lines, the drawing captures the expression and movement of the two lions and the way they place their bodies in relation to each other. The artists accurately recorded the way the big cats point their ears and hold their heads.

Anyone who has spent time studying African lions will be stunned by the cave artists' skill at observing and recording animal behavior.

These postures can occur in two different situations. When a male lion stands close to a female that is not ready to mate, the female will resist contact by growling, snarling, and keeping her suitor at bay. Alternatively, following an aggressive encounter, a victorious animal of either sex will sometimes strut past the submissive loser, which snarls in defeat, edging nervously away from its rival. Whichever situation is represented here, the painting seems like a snapshot of lion behavior, a realistic representation of a true-life event the painter witnessed firsthand. And the artist must have been fairly close to record the nuances of the lions' facial expressions. This lifelike portrait adorns one wall of a small alcove, while a more stylized lion has been sketched on the opposite side of the nook. The latter image is unnaturally stiff, but the viewer senses that the artist did not intend to create a realistic representation in this case. Although the lion is for the most part anatomically correct, its paws have been drawn as hooves. Many scholars believe that such distortions are deliberate and indicate a belief that various animals, and sometimes even humans, can take on the characteristics of other species. Such beliefs are particularly common in societies that have shamanistic religions. Even today, in some parts of the world, shamans are thought to take spirit journeys to underworlds, where they gain the powers of animal spirits.

Backtracking slightly, we enter a narrow passageway. There is no room to spare on either side, and we must be very careful not to graze the walls, which are adorned with yet more ancient drawings. The passage broadens, and in the widened chamber we see another pair of lions, nine feet across and breathtaking in their naturalness. Conveying a fluid sense of motion, simple outlines portray two lions walking abreast. The male is in the background and is much larger than the female at his side. His scrotum is conspicuous beneath his tail, and he has lowered his shoulders to be level with hers. Male African lions perform this maneuver when they consort with a receptive female, herding her in the desired direction. But while the cave lion may have courted his females in a manner similar to that of his modern African cousins, the painting reveals a conspicuous difference between the two species: the European lion had no mane.

Anyone who has spent time studying and photographing African lions will be stunned by the cave artists' accomplishments in observing and recording the behavior of the big cats. For the ancient artists to have made these observations, the lions must have been very relaxed in their presence. Modern-day African lions almost always flee from Masai pedestrians; tourists can approach within several yards only if they remain in their vehicles.

Farther along, the chamber opens out into the most spectacular gallery in Chauvet. Here the paintings extend high up the wall, and a series of lions faces a Paleolithic menagerie of rhinoceroses, bison, and mammoths. The outlines and shading of many of the lions are exquisite. And beneath these astonishing images, on the floor of the cave, we see a heap of charcoal. Probably used for making the drawings, it is as freshly preserved as if the burnt wood had been doused yesterday.

The first notable point about this great portrait gallery is that the sheer number and postures of the lions imply group living. Several pairs sit parallel, gazing at the same distant object-behavior often observed in Africa. In the best paintings in the gallery's upper regions, the postures are accurate and the facial expressions precise. One lion, with its front legs extended, appears to be crouching. Several of these portraits are so detailed that they depict the varied patterns of whisker spots, which biologists today use to identify individual lions in the field.

But a closer look reveals some peculiarities about this group of lion images. In some cases, we see

a sophisticated, realistic painting next to a rather crude sketch, perhaps a copy of the original by an apprentice. In other cases, the lion is drawn as a grotesque caricature: one of these was nicknamed "the hippo" by cave researchers. A few meters to the right of the grand panorama is a strange group of four lions, all standing right next to each other and depicted in profile. While one member of this quartet is a reasonable approximation of an actual lion, the others are somewhat distorted. One has an odd, dome-shaped head; another has a bizarre body shaped more like a bison's; and still another is little more than a medallion, a shield-shaped form with ears. While the main panel was at least partly inspired by individual lions, this group seems to reflect a deliberate transmutation of the animals' natural appearance; perhaps it is an illustration of a legend or of shamanic shape-shifting.

Midway between the panorama and the four bizarre leonine images is a third panel, showing two lions below a bison that looks directly at them, just as modern-day wildebeests warily eye African lions on the Serengeti Plain. Hanging from the ceiling in the midst of the three panels is a jagged rock formation containing a painting known to the cave's research team as "the Sorcerer." It appears to depict a bison's head and forequarters attached to a humanlike body.

The artists who created this wealth of imagery may have considered the huge, deep cave to be a genuinely supernatural underworld that humans could physically enter on certain occasions. One can easily imagine that this final, deepest chamber may have been used by the early inhabitants of the Ardéche as a sort of grand chapel. Blocked by walls festooned with a glorious array of stalactites and stalagmites, the passage ends here.

The paintings' creators may have considered these caves to be a super-natural underworld that humans could physically enter on certain occasions.

Clearly, those who lived in the region saw something very special in the lion. The seventy-three representations of this animal here in Chauvet Cave exceed the total from all the other caves in Europe, and compared with these, all the previously discovered lion drawings are crude sketches. Yet these are so much more ancient: 35,000 years old compared, for example, with Lascaux's 17,000.

Why were these remarkable artworks produced at Chauvet? We can only speculate. Perhaps an exceptional set of circumstances came together at that time and place. Certainly, one or more artists of extraordinary talent-not only gifted draftsmen but also keen observers of wildlife-lived in the vicinity. Perhaps they sat on the cliff above the Ardéche River, surveying the pasture beside the Pont d'Arc, watching a pride of lions take down a large mammal. Possibly the artists and their families had learned to let the lions bring down the bison for them. The people could then steal the meat rather than having to spear it on the hoof. A good pasture next to a permanent supply of water would have been a highly desirable stretch of real estate for both lions and humans. Perhaps the local pride had become relatively habituated to humans by the time our artists picked up their charcoal.

The Paleolithic inhabitants of the Ardéche represented the terrifying but useful cave lion as a potent, magical creature, sometimes giving it hooves, sometimes transforming a lifelike image into a caricature or a symbol. We will never know why these talented artists chose to portray these particular scenes or how they got so close to the maneless, pride-dwelling lions. But we can be sure they had courage and patience as well as a degree of curiosity that rivals that of the best naturalists of our own era.

Ancient artists observed how lions often sit next to each other and collectively gaze at potential threats or prey. The drawing at Chauvet, below, is recreated in living tableau by modern African lions, left.