gions and has had less time to accumulate random variations. Another piece of evidence is that the core also harbors just one type of transposon, a rogue piece of DNA that inserts itself into the genome, and this transposon is relatively young: It exists only in humans and not other primates. Because the flanking regions share additional transposons with other primates, Willard suspects that those flanking regions are the "ancestral centromere," with the modern centromere in the middle evolving after the ancestors of apes and humans diverged from lower primates.

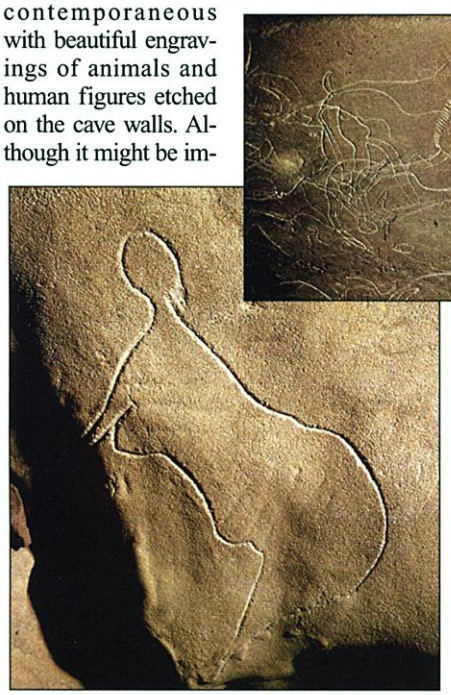
In this scenario, the higher order array replaced the ancestral sequence, leaving behind those "dead" centromeres as heterochromatin. And that, says Willard, suggests that although the centromere is functionally a highly conserved element, playing a key role in a range of organisms, its structure is a "highly fluid DNA sequence." That, in turn, suggests more surprises to come when centromeres of other organisms are unraveled.

–ELIZABETH PENNISI

CAVE ART

Stone Age Artists—or Art Lovers—Unmasked?

PARIS—Archaeologists may be on the way to solving two pivotal mysteries of prehistoric art: Who were the artists, and what was the meaning of their work? Radiocarbon dating of human remains found in the recently discovered Cussac Cave in the Dordogne Valley of southern France indicates that the bones are contemporaneous with beautiful engravings of animals and human figures etched on the cave walls. Although it might be impossible to prove that the remains were of the artists themselves, the skeletons may hold clues to who frequented the cave and why it had special significance.



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Whodunit? Human remains found near these engravings in Cussac Cave may hold clues to the art's meaning.

Fragmentary human remains have been found near cave art a few times in the past, but there has been no way of knowing that these were not art lovers, accidental visitors, or squatters from some other period. But Cussac is something special. "For the first time ever, we have … human skeletons deep in an uninhabited [decorated] cave," says French cave art expert Jean Clottes. Archaeologist Randall White of New York University agrees: No other cave "even comes close" to Cussac and its complete burials.

Cussac was discovered by a caver in September 2000, but the French government kept it secret until this July (*Science*, 20 July, p. 423). The engravings—which include fantasy animals with deformed heads and gaping mouths, and a voluptuous female profile—were provisionally dated to the Gravettian period, based on their stylistic similarity to other cave art. This would make them between 22,000 and 28,000 years old.

Ever since Cussac was found, archaeologists have been holding their breath, waiting to learn the dating results from the skeletons—four or five adults and one adolescent—found in hollows on the cave floor. Preliminary results from three bone samples analyzed by Beta Analytic, a radiocarbon lab in Miami, Florida, found that one of the samples gave a precise date of 25,120 years, plus or minus 120 years—clearly within the Gravettian period. (The other two samples did not give conclusive results.)

Archaeologists led by Norbert Aujoulat of the National Center for Prehistory in Périgueux will now begin a 3-year program to excavate the burials, including the stone tools and other artifacts found with them, as well as study the engravings themselves. "The archaeological context of cave art can provide more clues about the meaning of the art than the art itself," says Clottes.

Still, unless archaeologists find artists' materials ceremonially buried alongside the skeletons, they can only speculate on what connection the humans had to the engravings. If not the artists, they could be "highly regarded individuals put there as a kind of homage," says Clottes. They even might have been miscreants, he speculates, "people who misbehaved in such a dreadful way that they had to be put away as close to the spirits as possible, so they could not come back."

–MICHAEL BALTER

ScienceScope

A Measure of Quality Scientific groups are welcoming White House efforts to narrow new guidelines that allow the public to weigh in on whether information disbursed by agencies is up to snuff.

The "data quality" rules, which were tucked into a bill last year after lobbying by an antiregulatory group, are meant to assure that agencies disseminate accurate information (*Science*, 13 July, p. 189). But a requirement that scientific information be "substantially reproducible upon independent analysis of the underlying data" drew scores of concerned comments from the National Academy of Sciences and other academic organizations. They argued that peer review—the accepted process for identifying good science—doesn't require reproducing original results.

Last week, the protesting paid off: The Office of Management and Budget's (OMB's) revised guidance "is much improved," says George Levanthal of the Association of American Universities in Washington, D.C. OMB now says that publication in a peer-reviewed journal is "presumptively objective."

Further Fakes The Japanese amateur archaeologist who was caught planting artifacts at a site last year (*Science*, 10 November 2000, p. 1083) has admitted to more deceptions in his efforts to move back the date of the earliest human habitation of the archipelago. But archaeologists say that they will need several more months to complete their investigation of Shinichi Fujimura's work because of his questionable mental health.

Fujimura has been in a mental institution since the scandal broke and has spoken several times with a panel from the Japanese Archaeological Association. But Kunio Yajima, an archaeologist at Meiji University in Tokyo who serves on the committee, says it could only get limited details from Fujimura: "He is, in a word, sick, and our meetings were severely brief." Although the committee will release an interim report this week at a meeting in Morioka, Iwate Prefecture, its final report is not expected until next spring.

Meanwhile, other archaeologists aren't waiting. Charles Keally, an American archaeologist based at Sophia University in Tokyo, says that "the community has largely concluded that material [connected to Fujimura] will always be suspect."

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