16.5-kilometer-per-second dash through the gas and dust continually blown off a comet nucleus was an afterthought. Complicating matters, its star tracker, the spacecraft's only means of orienting itself, failed in 1999. With its camera jury-rigged as a replacement, "the encounter did not go the way we expected," said project manager Marc Rayman of JPL: "It went perfectly." By sheer luck, the spacecraft dodged a massive dust jet to return analyses of ions in the comet's hazy coma of dust and gas, infrared spectra of the nucleus, and black-and-white pictures sharper than any of comet Halley returned by a flotilla of spacecraft in 1986.

These detailed images revealed a terrain of diverse features. Each end of the nucleus has plateaus. A smooth, brighter plain at the center is emitting at least three columnar jets where the sun's heat is excavating a saddle-shaped depression. In addition, fractures crisscross the comet, several of them right in the thin neck of the bowling pin, according to planetary geologist Laurence Soderblom of the U.S. Geological Survey in Flagstaff, Arizona. "It's quite possible" Borrelly could break in two, either at the center or at the neck, he says. The way Borrelly seems to rotate would keep the jetting saddle continually illuminated while the comet is near the sun, adds comet specialist Donald Yeomans of JPL, hastening erosion at that spot. Eventually, the nucleus might even break into many pieces and vanish, just as comet LINEAR did in July 2000.

Deep Space 1 will meet a less spectacular end: In November, after more strenuous testing of its ion engine, its controllers will simply stop talking to it. **–RICHARD A. KERR**

PSYCHOPHARMACOLOGY

Drug Critic Sues After School Pulls Job Offer

A British psychiatrist and critic of antidepressant drugs is suing the University of Toronto (UT) and an affiliated mental health center for breach of contract after the center rescinded a job offer to him.

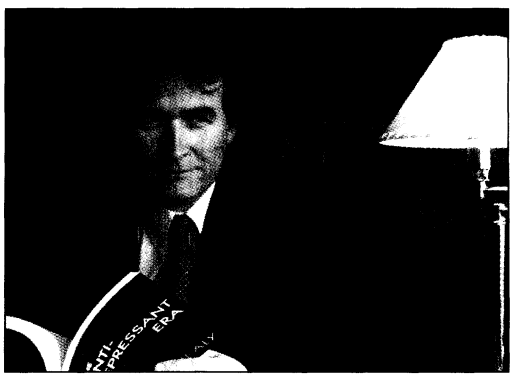
David Healy, a reader in psychological medicine at the University of Wales College of Medicine in Cardiff, claims that his academic freedom was violated after he gave a speech last fall criticizing drug companies and arguing that the popular antidepressant Prozac "can lead to suicide." His suit, filed in Toronto on 24 September, seeks reinstatement of the job offer at the Centre for Addiction and Mental Health (CAMH) or $9.4 million in lost salary and damages for libel. CAMH officials have told Healy—and explained in letters to their staff—that they felt his views are "extreme" and incompatible with the responsibilities he would assume.

Healy is a prominent historian of psychopharmacology who in recent years has testified as an expert witness for plaintiffs claiming injury from drugs like Prozac, known as SSRIs (selective serotonin reuptake inhibitors). In August 2000, CAMH formally offered him the post as clinical director of its mood and anxiety disorders program and professor of psychiatry at the University of Toronto, at an annual income of about $250,000. Healy accepted the written offer the following month.

On 30 November, Healy delivered a lecture in Toronto on "psychopharmacology and the government of self." In the talk, which he has given at numerous other locations and posted on his Web site (www.pharmapolitics.com), he discussed negative effects of antipsychotic and antidepressant drugs, including brain injury and suicides. The lecture caused quite a stir.

Less than a week later, CAMH chief physician David Goldbloom informed Healy that "While you are held in high regard as a scholar of the history of modern psychiatry ... we believe that it is not a good fit between you and the role as leader of an academic program. ... This view was solidified by your recent appearance." In a 17 May letter to his board of directors, CAMH head Paul Garfinkel wrote that Healy "has expressed extreme views that are inconsistent with published scientific evidence. These views go well beyond his peer-reviewed published work." Garfinkel said Healy's future colleagues were "shocked" by his presentation "to the point where the Centre felt that Dr. Healy would not have the necessary respect and support of staff."

Healy has sought support for his position, and last month 30 scientists—including Nobelists Arvid Carlsson and Julius Axelrod—signed a letter to the university saying that the case was an "affront" to academic freedom. Healy says that his views on psychotropic drugs should not have surprised



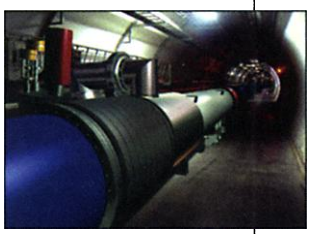
Costly words. David Healy's lecture led a Canadian mental health center to withdraw its job offer.

CREDITS: (TOP TO BOTTOM) CERN; COURTESY OF D. HEALY

ScienceScope

Budget Acceleration Europe's flagship particle accelerator, the Large Hadron Collider (LHC), is having budget troubles. The $1.6 billion project is facing a 20% budget overrun, officials revealed last month, with no easy solution in sight.

The increases are due to unexpectedly high excavation costs and rising prices for the LHC's 1236 superconducting magnets—which nudge charged particles along their 27-kilometer circular path—according to Luciano Maiani, director-general of CERN, the LHC's home lab near Geneva.



Next month, Maiani will have to present CERN's finance committee with a plan for paying the increased cost. It may involve obtaining extra loans and asking LHC partners, including the United States, to cough up more cash.

Physicist Gerardus 't Hooft of Utrecht University in the Netherlands worries that the money troubles could delay LHC operations, now set to start in 2006. But CERN officials aren't worried, saying there are "no technical reasons yet for a delay."

Retying the Knot Scientific collaborations between the United States and India and Pakistan have received a green light in the wake of the 11 September terrorist attacks.

The U.S. government cracked down after both nations tested nuclear weapons in May 1998, requiring U.S. organizations to obtain a license before shipping civilian materials deemed to have a dual military use to more than 300 institutions. The so-called "entities list" was trimmed somewhat in December 1999 and again in March 2000.

The latest easing, according to Indian officials, lifts the rules for most civilian R&D organizations, including many under the Defense Research and Development Organization. It follows a 22 September decision by President George W. Bush to waive prohibitions on trade in dual-use materials. Sri Krishna Joshi, a solid state physicist and president of the Indian National Academy of Sciences, welcomed the news, calling the restrictions "totally unnecessary." A small number of agencies involved in nuclear, missile, and space programs in the two countries remain under the restrictions.

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.

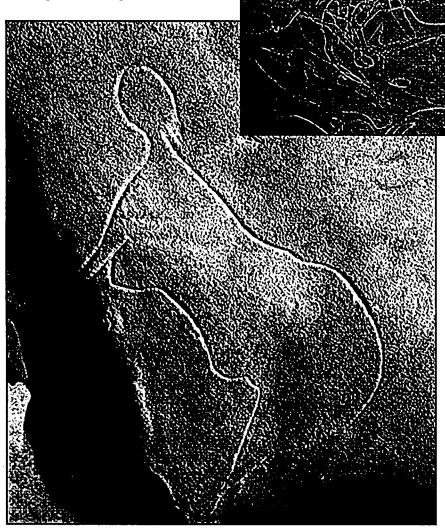
In this scenario, the higher order array replaced the ancestral sequence, leaving behind those "dead" centromeres as heterochromatin. And that, says Willard, suggests that although the centromere is functionally a highly conserved element, playing a key role in a range of organisms, its structure is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

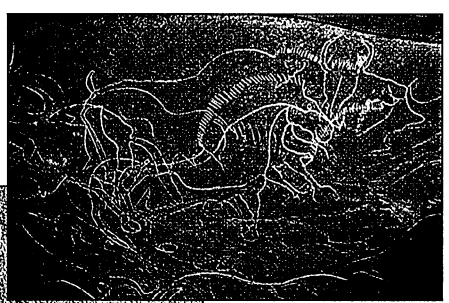
–ELIZABETH PENNISI

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.





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

CREDITS: CENTRE NATIONAL DE LA PRÉHISTOIRE, MINISTÈRE DE LA CULTURE ET DE LA COMMUNICATION

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."

Contributors: Alexander Hellemans, Pallava Bagla, Jocelyn Kaiser, Dennis Normile