**Too real.** Strip searches and delousing helped student "guards" assert power over "prisoners" in a 1971 experiment.

CREDITS: (TOP TO BOTTOM) PHILLIP ZIMBARDO; GEMINI OBSERVATORY

signed the role of either guard or detainee. The researchers have chosen a setup similar to Zimbardo's but with a less oppressive atmosphere and safeguards such as independent observers and clear boundaries for subjects' behavior. The BBC will televise the results, but the researchers retain control of the experiment's design and presentation.

Reicher and Haslam say this is a unique chance to test "social identity theory," which posits that group identity can override individual personality in shaping behavior. Dominic Abrams, a psychologist at the University of Kent in Canterbury, agrees: "It is rare that one gets an opportunity to simulate a powerful situation." And in the wake of the 11 September attacks, there is an urgent need for such research. "We don't have to be part of a terrorist cell to gain insight into the psychological processes involved with terrorism," he says.

Large-scale social psychology studies can cost hundreds of thousands of dollars, Abrams says, and TV companies may be the only source of funding. Haslam says safeguards alone will cost more than $100,000, but he and the BBC declined to disclose the overall budget for the program.

Although crews have not yet begun filming, Zimbardo and others have expressed concern that entertainment will be the overriding factor in carrying out the experiment. "There is no question in my mind but that the BBC and their consultants are hoping for something dramatic to erupt, to make it riveting for viewers," Zimbardo says. He says he declined the BBC's offer to participate because of the danger to the research subjects. Excessive precaution could also doom the experiment, says Peter Collett, a retired University of Oxford psychologist who consulted on the reality TV program *Big Brother*. "If we don't get the phenomenon that Zimbardo observed, then the whole thing is pointless," he says.

Reicher and Haslam insist there is a middle ground between cruel and dull. For one, the study will tone down the power imbalance between prisoners and guards through variations in housing, dress, and status, with the hope of exploring questions Zimbardo left open. For example, they will examine whether groups can have positive effects and if the results might also apply to milder social situations, such as relationships between employers and employees.

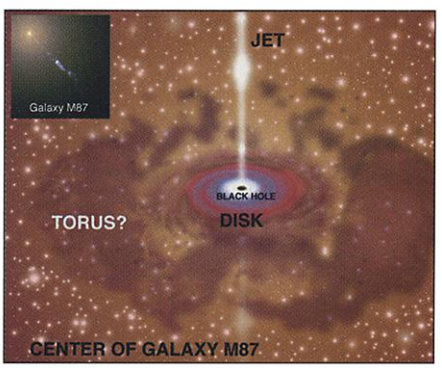
The dangers of Zimbardo's experiment and the trivializing influence of reality TV are the "Scylla and Charybdis" of the new project, Haslam says. Psychologists may differ on the potential perils of the study, but they agree on the importance of its goals. Viewers and researchers alike will have to wait until the show premiers next year to see if the partnership of science and television survives these treacherous waters.

–BEN SHOUSE

ASTROPHYSICS

## Black Hole Blazes Away Without a Fuel Supply

The massive jets of supermassive black holes—plumes of gas and dust that extend for thousands of light-years from the centers of some galaxies—require considerable reserves of firepower. The most likely source is the giant doughnut-shaped cloud of gas and dust thought to surround such black holes. But scientists have now found that the black hole at the center of a nearby galaxy called M87 somehow maintains its jets without this vast stockpile of fuel. The apparent paradox has theorists baffled.




**Black magic.** The black hole at the center of galaxy M87 has a brilliant jet but apparently no torus-shaped gas-and-dust cloud to fuel it.

"The most directly puzzling thing is the 'Here we see it, here we don't' aspect," says Julian Krolik, an astronomer at Johns Hopkins University in Baltimore. "What is striking here is that active galactic nuclei of both greater and lesser power than M87, which also resemble M87 in many other respects, are wrapped in thick clouds."

Until recently, the energy-spouting center of M87—an elliptical galaxy 50 million light-years from Earth in the constellation Virgo—was thought to be a typical active galactic nucleus, powered by a typical supermassive black hole. However, last year astronomer Robert Antonucci of the University of California, Santa Barbara, noticed that the cloud seemed to produce surprisingly faint infrared emissions. But the observations left many questions about the cloud unanswered.

Then a team led by Eric Perlman, an astronomer at the University of Maryland, Baltimore County, observed M87 with the Gemini North telescope in Hawaii. In the 1 November *Astrophysical Journal Letters* Perlman's team reports that longer observations have provided a much clearer picture of the infrared emissions of M87's black hole. Comparing the emissions from the torus-shaped cloud with the energy coming from the jet, Perlman found that M87's torus-to-jet ratio was only about 1/1000 as great as those of other active galactic nuclei such as Centaurus A and Cygnus A.

Perlman's findings will force theorists to revisit their models to account for black holes without giant dust clouds, Krolik says. "This makes it harder to produce any model," he says. –MARK K. ANDERSON

Mark K. Anderson is a writer in Northampton, Massachusetts.

GENETIC RESOURCES

## Seed Treaty Signed; U.S., Japan Abstain

Delegates from 116 nations have agreed on a landmark treaty intended to ease exchange of seed collections held in the world's agricultural "gene banks." The United States and Japan were the sole holdouts, both abstaining from a final vote taken 3 November in Rome.

The agreement, formally known as the International Treaty on Plant Genetic Resources, mandates the free exchange among plant breeders of seeds from 35 crops, including major cereals such as rice, wheat, and corn (*Science*, 26 October, p. 772). Other crops, however, including soybeans, tomatoes, and peanuts, are not included in the treaty after nations with extensive collections insisted on maintaining national control. Many nations have adopted laws restricting the export of such "genetic resources" since the international Convention on Biodiversity entered into force in 1993.

Under the new agreement, any company that uses seeds from public gene banks to breed a new variety must pay royalties into an