nuclear arsenal.

Critics "can write all the petitions they want, but [polygraphs are] coming," says DOE counterintelligence chief Ed Curran. However, he notes that the current proposal is the product of negotiations with lab managers and staff and that DOE has no desire "to force testing down people's throats." Chris Mechels, a retired Los Alamos computer scientist and vice president of the Los Alamos National Laboratory Employee Rights organization, also doubts the tests can be derailed. With Congress backing the plan, opponents can make "obligatory protestations, but I think it's a done deal," he says.

DOE chief Bill Richardson outlined the polygraph plan in April as part of a suite of security measures designed to calm members of Congress alarmed by allegations of Chinese espionage at Los Alamos, Lawrence Livermore, and Sandia national laboratories (*Science*, 26 March, p. 1986). Before the plan is put in place, however, the agency must collect public comment on how it plans to treat the 20,000 nonfederal employees who make up most of the lab staffs. They work for the University of California, which operates the Los Alamos and Livermore labs, and for the Lockheed Martin Corp., which operates Sandia.

The *Federal Register* notice (www.access.gpo.gov/su_docs/fedreg/a990818c.html) fills in the blanks. It specifies eight groups of employees and job seekers who would be "eligible" for periodic testing, including those involved in counterintelligence work and research that requires access to classified data. Overall, more than 10,000 lab employees would fall into one of the groups, but DOE officials say most lab scientists, whose work is not classified, would not be included. The proposed rule notes that the exams are voluntary, but that those who decline them could face "consequences," including loss of their security clearance and transfer to a less sensitive position. The plan also gives test-takers 48 hours notice, but does not allow a lawyer or witness to observe the questioning. DOE officials say examiners will be limited to asking four "yes or no" questions related to spying and sabotage. "We did everything we can do to give the advantage to the person taking the polygraph," Curran adds.

In the notice, DOE "acknowledges that some individuals consider polygraph examination results to be generally unreliable," but contends that there are "no scientific studies" that cast doubt on their value "as an investigative tool." Indeed, the agency claims polygraph results "are superior to random interviews" but should not "constitute the sole basis for taking any action against an individual." The notice also disputes critics who say testing could drive away researchers, and Curran told *Science* that less than half of those eligible will probably be tested.

Such assurances are small comfort to lab employees. Some are signing up to speak next month at a series of public hearings on the proposal, while others are signing petitions. The resisters include 165 members of Los Alamos's X-Division, which does top-secret work on nuclear weapons. "We are opposed to unwarranted blanket polygraphing of Q-cleared personnel," the petitioners wrote to Richardson last week, referring to a security clearance that gives holders access to classified information on a "need to know" basis. DOE officials say such blanket exams are not under consideration.

At Livermore the alarm is being raised by the Society of Professional Scientists and Engineers, an employees organization. "If thousands of workers are tested, as DOE proposes, some will surely be falsely accused of lying, with devastating effects on their careers," says computer scientist Patrick Weidhaas. It is "unthinkable," he says, that a "research institute with top scientists is supposed to undergo testing using a machine that a lot of experimentalists would not want to have in their lab due to its lack of accuracy." **–DAVID MALAKOFF**

SCIENTIFIC COMMUNITY

Salk Institute President To Step Down

LA JOLLA, CALIFORNIA—Three years ago, the appointment of cell biologist Thomas Pollard to head the Salk Institute for Biological Studies here ended a long and tortuous search for a leader to help put this scientifically rich, but endowment poor, institution on a more solid financial footing. Pollard has done that—Salk's endowment more than doubled, to over $100 million, during his tenure—but the leadership vacuum returned last Monday, when Pollard announced that he would step down as the Salk's president next year.

The reasons are murky, although trouble for Pollard was evident as early as February, when the institute split his job, leaving him as president but giving the CEO responsibilities to board chair Frederick Rentschler. "Being president is tough at a place like the Salk, where you have to administer it and raise money," says Stephen Heinemann, chair of the academic council. Pollard, he says, "actually has accomplished a number of things," but Heinemann stresses that "what makes Tom most enthusiastic is when he's doing his science." Pollard himself says he wants to spend more time in his lab. "If there were 36 hours in every day, it would have been easier," says Pollard, who plans to stay on as a Salk faculty member.

The Salk has a stellar research faculty but lacks alumni, an attached medical school, or a famous president—all aids to fund raising.

ScienceScope

Tilting at Solar Panels? Opponents of the international space station are staging another budget raid. Representative Tim Roemer (D–IN) announced last month that he will attempt to redirect $2 billion from the station's 2000 budget to other programs. Similar bids have failed in the past, but observers say this year's push packs a stronger political punch, in part because the General Accounting Office recently concluded that NASA still doesn't know the station's total price tag, adding to cost worries. Also, tight budgets in other programs have lawmakers hunting for funds; they have already "borrowed" $1 billion from NASA's 2000 budget. Finally, Roemer has forged alliances with veterans and fiscal conservatives, who have lobbying muscle.

The vote—expected on 8 September—"could be much closer than we would prefer," predicts one pro-station House aide. And "victory or not," it will highlight the project's flaws, says critic Ralph DeGennaro of Taxpayers for Common Sense, who charges that "the station is not science, it's science fiction."

The One-Night Standard One night of passion with that seductive foreigner you can keep to yourself, but two and you've got to tell—even if you can't remember their name. That is the gist of a recent Department of Energy (DOE) security memo that has some researchers amused.

Last month's counterintelligence directive spells out when DOE staff and scientists have to report "close and continuing contact" with citizens of "sensitive" nations, such as China, India, and Russia. It notes that employees can stay mum about one-night stands, so long as the pillow talk avoids secret subjects. But "if personnel have ... intimate contact on more than one occasion with the same foreign national ... the relationship must be reported" to security officials. And a lust-clouded mind is no excuse: "Such contact must be reported regardless of whether the foreign national's full name and other biographic data are known."

DOE officials say the policy is nothing new and is designed to avoid unnecessary intrusions into privacy. But one of the agency's globetrotting researchers says it is "a bit more explicit" than past guidance. In particular, he jokes, "it's a relief to know you don't have to remember your bedmate's name to comply."

CREDIT: DOUG STEVENS

make the best parents. "It doesn't take two great varieties to produce a great progeny," says Meredith. Or as Luby puts it, "Even a scruffy bull can sire good offspring."

–MICHAEL HAGMANN

ASTRONOMY

Stellar Small Fry, or Runaway Planet?

Dark objects each the size of a dozen Jupiters could lurk in nearby space, a new discovery suggests. Maria Zapatero Osorio of the Canaries' Institute of Astrophysics in La Laguna, Tenerife, along with colleagues there and at the University of California, Berkeley, has found a mysterious object, dubbed S Ori 47, which defies easy classification: It may be too light to be a brown dwarf, the smallest kind of star, and could even be a giant planet drifting alone through space.

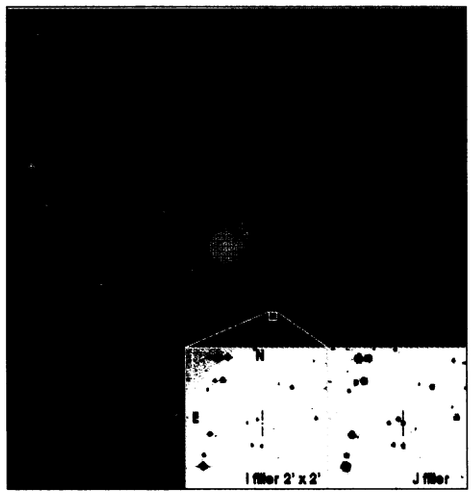
"This is the lowest mass object [beyond our solar system] ever imaged by astronomers," says Zapatero Osorio, who descibes the finding with her colleagues in a paper to appear in *Astrophysical Journal Letters*. S Ori 47 may be just 1.5% of the mass of the sun, or 15 times the mass of our own giant planet Jupiter. Whatever it is, it could be only one of many, as it is visible only because it is still glowing after its fiery birth. "There may be tens of them within 30 light-years from the sun," says Zapatero Osorio. "It's a very important discovery," says Kevin Luhman of the Harvard-Smithsonian Center for Astrophysics, who himself is hot on the trail of extremely low-mass objects. "It's discoveries like this that are developing an empirical picture of substellar objects." But he doubts that the objects are plentiful enough to account for the galaxy's "dark matter," the mysterious missing mass that seems to pull on the visible stars and gas.

Zapatero Osorio and her colleagues found S Ori 47 when they were observing a young star cluster in the constellation Orion. The stars in the cluster, 1100 light-years away, all formed just a few million years ago, so S Ori 47 is still glowing with the heat generated as interstellar gas collapsed to form it. The team studied it in detail using an infrared camera mounted on a 1.5-meter telescope at Teide Observatory on Tenerife in the Canary Islands, measuring its luminosity (0.2% of that of the sun) and surface temperature (some 1700 degrees Celsius). They estimated its mass by plugging these measurements into theoretical models of how quickly objects of different masses should cool and fade after their formation. The models are uncertain, says Zapatero Osorio, so the mystery object could be anything from 10 to 20 Jupiter masses.

That mass range straddles the dividing line between brown dwarfs and giant planets, which many astronomers put at about 13 Jupiter masses. Objects just above that mass—brown dwarfs—are not massive enough to ignite the hydrogen fusion furnace in their cores, but at some point during their lifetime they do burn deuterium (heavy hydrogen). However, anything less than 13 Jupiter masses is thought to be incapable of burning even deuterium and is considered a planet. Planets are also generally thought to form in the disk of material around a star, while stars can form directly out of a collapsing gas cloud. S Ori 47 may have formed as a solitary object, but it is equally likely to be an ejected planet.

Last year, Susan Terebey of the Extrasolar Research Corp. in Pasadena, California, claimed to have discovered an ejected planet on a Hubble Space Telescope photo. Although "there has been much skepticism about this particular claim, there's no reason why it couldn't happen," says James Liebert of the University of Arizona, Tucson. According to Liebert, the highly elliptical orbits that some extrasolar planets seem to follow around their parent stars can only be explained through the gravitational interactions of a third body in the system. "This can easily result in the ejection of a Jupiter-mass planet from the solar system altogether," he says.

Regardless of its true origins and nature—



Miniature mystery. Is S Ori 47 a star too small to ever burn or an ejected planet?

CREDIT: ZAPATERO OSORIO *ET AL.*, *AP. J. LETTERS*, IN PRESS; BEJAR *ET AL.*, *AP. J.* 521, 671 (1999)

low-mass brown dwarf or rogue planet—S Ori 47 appears to be no astronomical oddity. "Currently, we're observing much fainter candidates in the same cluster," says Zapatero Osorio. Because all cluster members are roughly the same age, the fainter ones are probably even less massive. If the cluster is typical for the galaxy at large, space could be heavily populated with such objects. But their

ScienceScope

Steamed About Stem Cells A prominent biomedical advocacy group is taking some heat for failing to support controversial human stem cell research. In a letter last month to John Seffrin, CEO of the American Cancer Society, Stanford biochemist Paul Berg expressed "deep disappointment" over ACS's "recent action withdrawing its support for human embryonic stem cell research," which uses cells derived from embryos and fetuses.

The 26 August letter from Berg, head of the American Society for Cell Biology's public policy committee, was prompted by a 29 July *New York Times* report that influential Catholics had pressured ACS into withdrawing its endorsement of Patients' Cure, a group advocating stem cell research. It was "shocking," Berg wrote, that ACS had failed to join with other groups calling for federal funding of such work.

But Berg has it wrong, says Greg Donaldson, ACS vice president of public relations in Atlanta. Although ACS isn't backing Patients' Cure, he says "nothing could be farther from the truth" than the claim that ACS withdrew its support for stem cell research. "How could we, when we haven't formulated a policy yet?" he asks. Though ACS joined other groups in May to urge Congress not to ban stem cell research, he says staff are still "engaged in a deliberate internal dialogue" on its policy.

Whose Mummy? Researchers and Native Americans are at odds over the fate of Spirit Cave man, a 9400-year-old mummy. Found in 1940 about 90 km east of Carson City, Nevada, the mummy is the oldest documented North American yet. First presumed to be less than 3000 years old, the remains were carbondated after being rediscovered in storage at the Nevada State Museum in Carson City in 1994. The new date sparked a flurry of research, as well as demands from the Fallon Paiute-Shoshone tribe, which wants to bury its alleged ancestor.

Scientists are keen to do a DNA probe on the Spirit Cave bones, but the government has forbidden any invasive procedures pending a custody decision. Both sides are pleading their case to the federal Bureau of Land Management (BLM), which will make the decision. In the meantime, scientists eager to see whether Spirit Cave man sheds light on the peopling of the Americas are on tenterhooks. Says University of Nevada archaeologist Eugene Hattori: "Everyone is waiting for BLM."

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