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

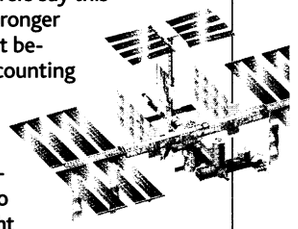
LA JOLLA, CALIFORNIA—Three years ago, the appointment of cell biologist Thomas Pollard to head the Salk Institute for Biological Studies here ended a long and tortuous search for a leader to help put this scientifically rich, but endowment poor, institution on a more solid financial footing. Pollard 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

Under Pollard, however, the institute raised a record $25 million last year alone, and the stock market increased the value of its investments. Salk will soon receive another bolus of more than $16 million if a pending deal with Merck goes through. This would allow the pharmaceutical giant to buy a biotechnology company in which the Salk has major stock holdings, Sibia Neurosciences.

Although Salk is in better financial health than ever before, supporting three endowed chairs for the first time, Heinemann and other Salk researchers say the institution would like a much larger endowment still, so that, ideally, all 56 faculty members would have endowed chairs. "A lot of faculty are struggling," says Heinemann, who has one of the three current chairs. The Salk board recently brought in an independent consultant to review the organization and make recommendations for restructuring it. Faculty member Fred Gage and others note, however, that the review specifically did not address whether Pollard should stay on as president.

Last week's decision opens a new period of uncertainty for Salk, which has had trouble finding a leader ever since Frederick de Hoffman, its head for 18 years, stepped down in 1988. The problem, time and again, has been finding a topflight researcher who is willing to devote enough time to fund raising and administrative issues—precisely the fix that the Salk is in once again. A six-member search committee has begun scouting for Pollard's successor. "Pollard played an important role," says Heinemann. "Now we're going to look for a new type of leadership." If past is prologue, expect the Salk to try and find a Nobel laureate who is winding down his or her lab activities. **–JON COHEN**

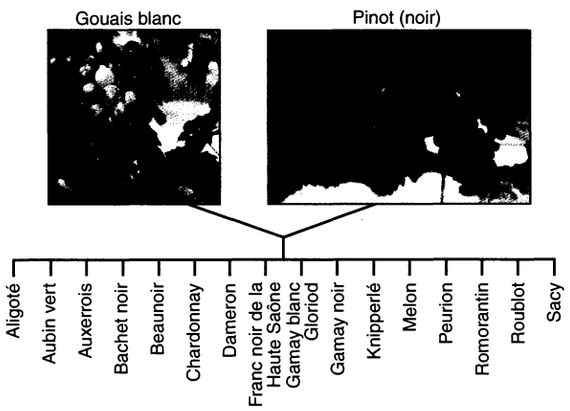
PLANT GENETICS

A Paternity Case for Wine Lovers

In vino veritas—the Romans had it right. In the more than 5000 years since humans began making wine, plenty of secrets have tumbled from lips it has loosened. Now, wine grapes themselves are spilling some intimate secrets—about their own parentage.

Using DNA fingerprinting techniques akin to those used to solve crimes and settle paternity suits, scientists at the University of California (UC), Davis, have shed some light on the fiercely disputed pedigree of a number of the world's most renowned grapevine varieties, or cultivars. As they report on page 1562, 18 varieties long grown in northeastern France—including Chardonnay, the "king of whites," and reds such as Pinot and Gamay noir—prove to be close relatives. Indeed, 16 of them turned out to be the offspring of a single, highly prolific pair of parents: Pinot, the very epitome of a fine Burgundy, and, surprisingly, Gouais blanc, an obscure white variety that was widespread in the Middle Ages but was banned several times in France, most recently in the 1950s, due to the poor quality of its wine.

James Luby, a fruit geneticist at the University of Minnesota, St. Paul, says the results "show the power of using genetic markers to clear up a conundrum that has been speculated about for decades, if not centuries." What's more, the findings are likely to cause a stir in the wine community. "This is quite a shocker," says grape geneticist Bruce Reisch of Cornell University's New York State Agricultural Experiment Station in Geneva. "No one would have imagined that all [these varieties] are from the same parents."



Proud parents. The prolific Burgundy ancestors Pinot and Gouais blanc sired 16 different offspring varieties, among them Chardonnay and Gamay noir.

The viticultural detective story has its roots in the early 1990s when Mark Thomas, a grape geneticist at the Commonwealth Scientific and Industrial Research Organization in Adelaide, Australia, and his colleagues developed a system to distinguish grape cultivars based on their so-called microsatellites. These consist of simple, repetitive sequences of DNA that vary in length between unrelated individuals, creating a genetic "fingerprint" that can tie crime-scene evidence to suspects and establish paternity—in both humans and wine grapes.

Thomas and others originally demonstrated the power of this technique by unraveling the parentage of Müller-Thurgau, the most widely cultivated white variety in Germany, developed around the turn of the century. Then, in 1997, plant geneticist Carole Meredith and her colleague John Bowers at UC Davis for the first time identified the parents of a traditional cultivar. They showed that Cabernet Sauvignon—undoubtedly the world's greatest and most successful red wine cultivar—is a progeny of two other classical Bordeaux varieties, Cabernet franc and Sauvignon blanc. Encouraged by their success, Bowers and Meredith, in collaboration with Jean-Michel Boursiquot of the Ecole Nationale Supérieure Agronomique and Patrice This of the Institut National de la Recherche Agronomique (INRA), both in Montpellier, France, decided to see if they could find the hidden family ties among 322 French grape varieties, some of which—such as Gouais blanc—are not even cultivated anymore and had to be retrieved from the INRA plant preservation collection.

Aided by a computer program Bowers developed for spotting microsatellite patterns shared by the cultivars, the researchers were able to construct what amounted to a Burgundy family tree, tracing the relationships of 18 varieties from that region. Pinot and Gouais blanc appeared to be the likely founders of the Burgundian line—a conclusion buttressed by statistical analysis, which showed that a Pinot-Gouais lineage is at least 10^{12} times more likely than any other combination for all 16 progeny varieties. "This makes it a pretty safe bet for Pinot and Gouais blanc," says Thomas. Because most, if not all, of the 16 siblings predate the times of deliberate grapevine breeding by hundreds of years, Meredith says the various crosses must have occurred spontaneously—and independently—by cross-pollination between Pinot and Gouais vines, most likely somewhere in northeastern France.

For wine purists, especially in France where new hybrid grape varieties are legally excluded from bearing the prestigious designation, "Appellation d'Origine Controllée" (AOC), the findings might be rather disconcerting. Says Alain Bouquet, a grape breeder at INRA, "The AOC system from 1934 was based on the assumption that varieties obtained by crossing are inferior to the traditional varieties. I think this is erroneous in the case of crosses between old European varieties, as it is now proved that the two best varieties in the world, Cabernet Sauvignon and Chardonnay, are derived from such crosses."

Indeed, Bouquet and his colleagues are now performing their own Pinot-Gouais crosses to see if they can recreate the successes of the original, spontaneous crosses. He expects the first miniharvest in 4 to 5 years. "Grapevine selection is a very long and costly process," he explains. The new results also show that the best grapes don't necessarily

CREDITS: (LEFT TO RIGHT) J. P. BRUNO, INRA DOMAINE DE VASSAL; CAROLE MEREDITH, UNIVERSITY OF CALIFORNIA, DAVIS