chain]. It's a matter of taste." Buseck can't recall anyone finding anything like these chains preserved for so long on Earth. Here they seem to fall apart on the death of the bacterium, not be preserved for billions of years as required for any martian examples.

Meteoriticist Ralph Harvey of Case Western Reserve University in Cleveland is less understanding. "We've seen this before" with ALH84001, he says. "Someone says, 'Let's take a novel technique and turn it on a very complex rock.' Who knows what the inorganic magnetite in rock may look like with this technique? They're just interpreting things in a narrow way." Some nonbiological process might just as well produce magnetite in such arrangements, he says, given that magnetite very much like Thomas-Keprta's has been made in the laboratory (*Science*, 31 March 2000, p. 2402). An equally intensive search of other rocks—both extraterrestrial and earthly—is in order, says Harvey. If these "chains" are going to change anyone's mind, adds Buseck, "we're going to need better chemistry and images [of the chains], perhaps better than is available now." **–RICHARD A. KERR**

GERMAN SCIENCE

New Money to Lure Talent From Abroad

BERN—When she visited Silicon Valley and Stanford University in January, Edelgard Bulmahn, Germany's research minister, quizzed German scientists about why they had left their homeland. She got an earful: Complaints ranged from a dearth of jobs to distaste for rigid university hierarchies. Bulmahn appears to have taken such complaints to heart. Last week, she announced that her ministry will channel $82 million into various initiatives aimed in part at winning back expatriate scientists and preventing talented young researchers from leaving. "We want to stop the brain drain," says Bulmahn, "and instead start up a brain gain."

Bulmahn and others in Germany's science establishment have plenty of reason for angst. Several German scientists have won Nobel Prizes for research done in U.S. labs, including physicist Horst Störmer in 1998 and cell biologist Günter Blobel in 1999. Compounding the problem, a recent study found that about 14% of German science students land graduate or postdoc positions in the United States, and up to a third of them don't return.

To try to begin countering this trend—as well as inject foreign blood into German universities—the research ministry has tapped government revenues raised last year from licensing use of communications frequencies to help launch new programs at the Alexander von Humboldt Foundation and the Academic Exchange Service (DAAD). "We want to attract some of the world's best scientists to Germany," says Humboldt president Wolfgang Frühwald, who calls the new government funding "an important initiative."

Humboldt is using its share of the extra funding—$46 million over the next 3 years—to launch new programs such as the Wolfgang Paul awards. This program aims to attract between 15 and 20 top-notch scientists to Germany by offering grant support of as much as $2 million over 3 years. While the Paul awards are aimed mainly at non-German scientists, native Germans who have worked abroad for more than 5 years are eligible to apply. "We're interested in the high quality of the researchers, not the countries on their passports," says Humboldt's Thomas Hesse. In another program, Kosmos, Humboldt will give 3-year grants of up to $1.1 million to younger scientists.

Bullish on foreigners. Minister Bulmahn, here with a young U.S. researcher, wants to infuse fresh blood into German science.

CREDIT: MARTIN MEISSNER/AP

The other beneficiary of the new funds, the DAAD, will get about $34 million over 3 years to jump-start three new programs. One, Innovatec, will sponsor about 50 guest scientists annually—open to any professors at all levels outside Germany—to work at German universities. Another program will help fund exchanges of between 500 and 1000 graduate students and advanced undergrads a year. The new programs will complement ongoing efforts to give young researchers more independence and to help transform German universities (*Science*, 5 January, p. 23, and 2 February, p. 821).

Bulmahn thinks these initiatives, along with a wave of retirements at universities expected over the next 5 years, will open up new opportunities for scientists. As she told the California expatriates, "it would be great to see you again in Germany."

–ROBERT KOENIG

SCIENTIFIC MISCONDUCT

Fallout From German Fraud Case Continues

BERN—An expert panel has criticized Roland Mertelsmann, one of Germany's best known cancer researchers, for failing to detect data falsification and manipulation that allegedly occurred in his department and in some papers on which he was listed as a co-author. Responding to the findings, the rector of the University of Freiburg last week asked the state government to launch disciplinary proceedings. Mertelsmann, chief of the university medical center's oncology and hematology department, immediately called the inquiry "unfair" and vowed to mount a vigorous defense.

Last June, a task force found that 94 papers co-authored by former cancer researcher Friedhelm Herrmann between 1988 and 1992 contained likely falsifications or instances of suspected data manipulation (*Science*, 23 June 2000, p. 2106). Herrmann, who quit his post at the University of Ulm in the wake of the allegations, had worked in Mertelsmann's department at Freiburg.

Investigating Mertelsmann's role in the questionable work, the Freiburg panel, headed by Albin Eser—director of the Max Planck Institute for Foreign and International Criminal Law in Freiburg—found no evidence of falsifications by Mertelsmann, who was listed as a co-author on 58 of the Herrmann papers the task force called into question. But the panel faulted Mertelsmann for failing to monitor his department's research closely enough to detect the alleged misdeeds.

The Freiburg panel also cited "serious irregularities" related to two articles co-authored by Mertelsmann that did not involve Herrmann: a September 1994 paper in *Blood* and an August 1995 paper in *The New England Journal of Medicine*. The panel found that some data in these papers, describing clinical trials of cancer treatments, were presented in such a way that they gave the impression of being "more complete and consistent than was actually the case." The panel also found inadequate records of whether some patients had given written informed consent to participate in the trials.

According to the panel, these shortcomings—which also involved other researchers who have since left the university—showed "reckless violation of the rules of good scientific conduct." The panel's report credits Mertelsmann, however, for deleting nearly all the suspect papers from his publication list and taking an active role in correcting or retracting some papers.

In a statement last week, Mertelsmann complained that he had been denied ade-

quate access to key documents related to the allegations and had not been given the opportunity to respond before the report was made public. He stated that he had not yet read the report but would defend himself "against any allegations." Mertelsmann could not be reached for further comment.

At a 1 March press conference, university rector Wolfgang Jäger said he has asked the state of Baden-Württemberg's Research Ministry to initiate a disciplinary proceeding "to clarify the extent of [Mertelsmann's] personal responsibility" for the questioned research. A spokesperson for the ministry, which is not obliged to launch such a proceeding, says a decision is expected in the next few weeks.

Meanwhile, the Freiburg medical center's supervisory board has asked Mertelsmann to withdraw voluntarily from clinical research for the duration of any disciplinary hearing. Jäger said no further actions are necessary, because the center and its faculty have taken steps—such as adopting stricter rules of conduct—to safeguard research integrity.

–ROBERT KOENIG

QUANTUM CHROMODYNAMICS

Quark Quirk Triggers Nuclear Shrinkage

If atoms had egos, a few lithium nuclei would be nursing bruises right now. By sticking an exotic type of quark where it doesn't belong, physicists have cut the nuclei down to four-fifths normal size. In the process, the scientists are edging toward a theory that can explain nuclear interactions of all varieties.

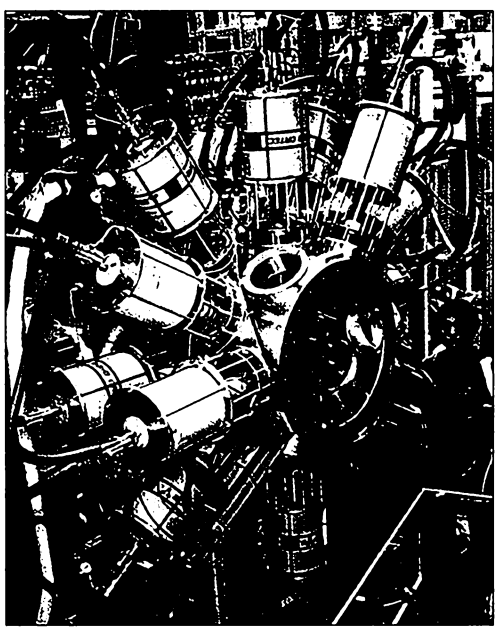
"Shrinkage of about 20% is very surprising," says Hirokazu Tamura, a physicist at Tohoku University in Sendai, Japan. "Nuclear physicists know that compressing the nucleus is very, very difficult."

So instead of trying to squeeze an atomic nucleus, Tamura and colleagues from Japan, China, Korea, and the United States set out to shrink it from within. In the 5 March *Physical Review Letters*, the physicists describe how they injected a little dose of strangeness into a lithium-7 nucleus. Through a handful of particle interactions, they substituted a strange quark for a down quark, turning one of the atom's neutrons into a particle called lambda, or Λ. "It's quite similar to the neutron, but somewhat heavier," says John Millener, a physicist at Brookhaven National Laboratory in Upton, New York. "A proton is two ups and a down, a neutron is two downs and an up, and a Λ is an up, a down, and a strange." The quark substitution turned lithium-7 into lithium-6-Λ, a so-called "hypernucleus" with subtly different properties from a garden-variety lithium nucleus.

The difference stems from the Pauli exclusion principle, the quantum-mechanical rule that forbids certain particles from having the same quantum state. Given the chance, a neutron in a nucleus will occupy the lowest possible energy level, or ground state. Two neutrons can inhabit that level, but only if they have different quantum states. For that to be true, one neutron must have spin +1/2, and the other must have spin −1/2. A third neutron, however, must take a higher energy position farther away from the center of the atom. The same exclusion rules apply, independently, to protons.

Lithium-6 has three protons and three neutrons; one proton and one neutron are in the higher energy state, loosely bound to the core. Enter the Λ. Because a Λ particle is distinct from both protons and neutrons, it is exempt from the Pauli exclusion principle that governs those particles. As a result, it sinks directly into its ground state, joining the low-energy protons and neutrons at the center of the nucleus. "You put the Λ in the system, and it makes everything more stable by interacting with the [protons and neutrons]," Tamura says. The extra Λ binds the particles more tightly together but, unlike an added proton or neutron, takes up no additional space. The stabilized nucleus shrinks.

Tamura's team observed the shrinkage by precisely measuring gamma rays that emanate from lithium-6-Λ hypernuclei. The gamma rays reflect the shifting of particles' spins within hypernuclei—information that can help scientists determine not only a hy-



Squeeze play. Gamma rays entering the 14 spokelike detectors of Tohoku University's Hyperball instrument showed evidence of pint-sized lithium nuclei.

CREDITS: (LEFT TO RIGHT) DEPARTMENT OF PHYSICS, TOHOKU UNIVERSITY; U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

ScienceScope

Stem Cell Limbo Those hoping for clear signals about the status of U.S. government funding for human embryonic stem cell research were disappointed last week. Secretary of Health and Human Services (HHS) Tommy Thompson (below) told reporters and National Institutes of Health (NIH) staff gathered for a 1 March budget briefing that the legal questions surrounding the cells are still "a little murky, because Congress has passed a law" that forbids NIH from funding work that harms or destroys an embryo.

In 1999, an HHS lawyer reasoned that work could go forward because embryonic stem cells—valued because they can be coaxed to grow into a variety of cell types—are not themselves embryos. But that opinion "has been questioned by other lawyers," Thompson said, and the department is reviewing the matter. If the Administration decides it is legal to go ahead, the review won't hold up funds, he vowed. The next deadline for researchers to submit proposals for stem cell work is 15 March, but ethics and science reviews mean scientists won't receive awards before June, said NIH acting director Ruth Kirschstein.

Meanwhile, lobbying on the volatile issue continues. The American Association for the Advancement of Science (*Science*'s publisher) this week sent Thompson a letter urging him to let stem cell funding proceed.

Russelling Up Staff The Bush White House has made its first science-related job appointment. It's Richard Russell, a former House Science Committee senior staffer, who this week took up residence as the White House Office of Science and Technology Policy's (OSTP's) chief of staff.

Russell spent 6 years on the Science Committee, where he handled an array of issues, and also helped with the Bush Administration's transition efforts at the Department of Commerce and the National Science Foundation. Before going to OSTP, rumors had him in the running for a senior Commerce post overseeing the National Oceanic and Atmospheric Administration.

Russell's duties—and longevity—at OSTP are unclear. Researchers are still anxiously waiting for the White House to name a new science adviser, who also heads the office and could bring in his own team.

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