ask Afghans and the world's Muslims to use their sound wisdom," Taliban chief Mullah Mohammed Omar was quoted as saying on 4 March on official radio. "Do you prefer to be a breaker of idols or a seller of idols? Is it appropriate to be influenced by the propaganda of the infidels?"

As *Science* went to press, the destruction of the Buddhas had begun. Government officials also boasted that two-thirds of the thousands of offending objects had been smashed. Nevertheless, a special envoy from the United Nations was trying to broker a solution, and other Islamic nations expressed outrage over the decree. –ANDREW LAWLER

ASTROBIOLOGY

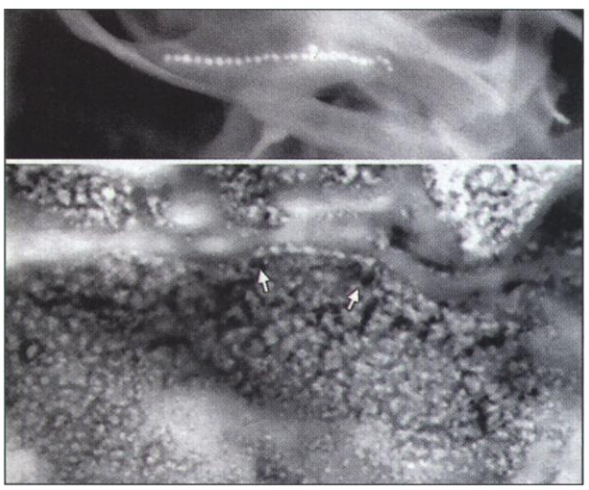
Are Martian 'Pearl Chains' Signs of Life?

Life on Mars jumped back into the headlines last week with the publication of two papers claiming that nanoscale mineral grains in the famous martian meteorite ALH84001 were left by ancient martian bacteria. One paper was old news to researchers (*Science*, 22 December 2000, p. 2242). The other got a generally cautious reception when it was reported in the media, but now many experts are turning downright incredulous as they get a chance to inspect the published images. One of the two papers "defines a new low in the great ALH84001 debate," says microscopist John Bradley of MVA Inc. in Norcross, Georgia, a longtime critic of martian microbe claims. Even the fence sitters are unimpressed: "There's a lot of subjectivity" in the analysis, says geologist Allan Treiman of the Lunar and Planetary Institute in Houston. "They've gone too far in interpreting the images" as signs of life.

Meteorite ALH84001 first made headlines in 1996, when a group of researchers claimed that the chemical, mineralogical, and isotopic makeup of the meteorite—and some buggy-looking microscopic features—spoke of ancient life back on Mars. All but one of those lines of evidence have been withdrawn or discounted as not definitive, singly or collectively. The remaining evidence is grains of the iron-oxide mineral magnetite a few tens of nanometers in size, the same sort of particles that some earthly bacteria form, stringing them into long chains to make magnetic compasses.

In one of the 27 February *Proceedings of the National Academy of Sciences* (*PNAS*) papers, microscopist Kathie L. Thomas-Keprta of Lockheed Martin in Houston and colleagues argue that about one-quarter of ALH84001's magnetite is indistinguishable from the magnetite of a particular terrestrial magnetotactic bacterium, and therefore the martian magnetite probably has a bacterial origin, too. Thomas-Keprta made the same argument in another paper late last year. Other researchers agreed about the resemblance but concluded that the evidence was not extraordinary enough to prove such an extraordinary claim.

Now comes the claim that some of ALH84001's magnetite is arranged in chains like pearls on a string, just the way some bacteria form magnetite on Earth. In the second *PNAS* paper, Imre Friedmann of NASA's Ames Research Center at Moffett Field, California, and colleagues present scanning electron microscopy (SEM) images of what they believe are chains of magnetite grains produced by bacteria. In a mode of SEM operation that highlights heavy elements such as iron, images show bright blobs of presumably iron-rich material lined up across the surface. "The chains we discovered are of biological origin," says Friedmann, because the fuzzy blobs have a uniform size and shape within a chain, have consistent gaps between them, are aligned end to end when elongated, and can bend in curved chains, just like magnetite chains of earthly bacteria.



The real thing? Iron-rich blobs seem to form chains in a martian meteorite (bottom) that resemble the magnetite chains of earthly bacteria (top).

CREDIT: I. FRIEDMANN/NASA AMES RESEARCH CENTER

Initial news reports quoted vague reactions from experts who had yet to see the images or had seen them in faxed versions only, but the real McCoys are getting a decidedly cool reception. Microscopist Peter Buseck of Arizona State University in Tempe is among the most receptive. "It's an interesting paper," he says. "I have no problem dismissing some of the [chains]. There are others that seem to come close to a real [bacterial magnetite

ScienceScope

Can-Do Genome Canadian genomics research kicked into a higher gear last week as the federal government increased its contribution to a national genomics initiative by $95 million, to $202 million. "Genomics promises tremendous quality-of-life benefits for all Canadians, especially in health, and will be a key economic engine in the 21st century," said Industry Minister Brian Tobin in a news briefing.

The contribution will bring Genome Canada closer to its target of $400 million (*Science*, 10 March 2000, p. 1732). The program has already collected $160 million from the provinces and the private sector, with the rest expected over the coming year. The governing board is reviewing 31 projects that have survived an initial review and hopes to announce the winners after its next meeting on 23 March.

The additional funds should make more scientists happy, says chief executive officer Martin Godbout. He says it will also help Canada keep up "not just in sequencing, but the next step, which is functional genomics."

Training Tumult The National Institutes of Health (NIH) is about to propose new guidelines on training graduate students and postdocs that it hopes will defuse growing criticism of current policies. Last August, a National Academy of Sciences panel recommended that NIH fund more young researchers through general training grants, and fewer through research grants to specific investigators, as a way to improve the quality of their education without increasing the competition for jobs (*Science*, 8 September 2000, p. 1667). Last week, some of the same issues were debated as the academy held a day-long symposium to promote a September report that fingered NIH's current training stipends as contributing to the economic plight of postdocs.

NIH officials say the new guidelines, the product of a lively 6-month debate on the Bethesda, Maryland, campus, aim to balance the educational needs of students and the research requirements of investigators. But the issue of raising salaries is complex, says Marvin Cassman, director of the National Institute of General Medical Sciences, who was under fire at last week's symposium from both angry postdocs and harried administrators. Any boost in stipends, he noted, would lower the number of students and postdocs NIH could support, unless Congress or administrators substantially increase the agency's training budget.

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-