based on falsified data.

"It's a conclusion that scientists are very reluctant to arrive at, but it is what happened in this case," says Pier Oddone, deputy director for research at LBNL. "Our conclusion was that the data had been fabricated." After an investigation, says Oddone, "the lab took action" and in May dismissed the individual thought to be responsible. Ron Kolb, a spokesperson at LBNL, declined to describe the alleged misconduct or to mention names, but he confirmed that Victor Ninov, who was in charge of the data analysis of the experiment, has been fired from the laboratory. And now, scientists in Germany say they have found falsified data in two other experiments that Ninov participated in: the 1994 and 1996 discoveries of elements 110 and 112.

The LBNL discovery began to fall apart last year. After GSI, LBNL, and other laboratories failed to replicate the experiment, an LBNL team reanalyzed the original data. Shockingly, the crucial evidence for the "discovery"—cascades of alpha particles that accompany the deterioration of a superheavy element—was nowhere to be seen (*Science*, 3 August 2001, p. 777). "They looked again at the old data, the magnetic tape, and they couldn't find the decay chain among the data," Hofmann says. "The conclusion was that it was produced artificially."

LBNL informally retracted the discovery last July. This week, all 15 authors of the original discovery paper except Ninov published a formal retraction of their claim in the 15 July *Physical Review Letters*. And, according to Hofmann, two experiments performed at GSI—for which Ninov was in charge of data analysis—also showed signs of scientific fraud. "When we reanalyzed our decay chain for element 112, we saw that the first decay chain was produced artificially," he says. "In the original data, only one alpha particle was measured. Four additional alphas were artificially added to this one." In the GSI experiment for element 110, the second of four decay chains also seems to be a fabrication, Hofmann says.

"I couldn't understand it; I still cannot understand it," says Hofmann. "We had good data. There was no reason to produce artificial ones—and [the culprit] would be sooner or later discovered." Luckily for the GSI team, the good data were enough to prove the existence of elements 110 and 112. But elements 116 and 118 vanished along with the spurious data, leaving the scientists at LBNL stunned and embarrassed. "It is a shock. The reaction is astonishment and anger," says Oddone.

—CHARLES SEIFE

MIDDLE EAST

Archaeologists Keep Joint Project Rolling

ÇATALHÖYÜK, TURKEY—Barely 100 kilometers separate the University of Haifa from the Palestinian Association for Cultural Exchange (PACE) in the West Bank town of Ramallah. But military rules prevent travel between the two cities. So this month, a group of Israeli and Palestinian archaeologists and educators from the two institutes, working together on a U.S.-funded project to explore and protect their shared history, journeyed all the way to south-central Turkey to seek common ground.

To be sure, no peace has flowed from a 1998 agreement between then–Israeli Prime Minister Benjamin Netanyahu, Palestinian Authority Chairman Yasser Arafat, and U.S. President Bill Clinton, negotiated at Wye River, Maryland. But the agreement did result in a $10 million fund, provided by the U.S. Department of State, for cooperative Israeli-Palestinian projects. Last fall, $400,000 from that fund was awarded to a joint project to conserve and promote archaeological sites that are key to the region's complex history. Unable to meet on their home territories, 13 representatives of the project teams met at the Neolithic site of Çatalhöyük from 29 June to 3 July to get the ball rolling. "We are working together to preserve the cultural heritage of the region," says archaeologist Adel Yahya, director of PACE.

The visit was in part prompted by the group's desire to learn the latest results from 9500-year-old Çatalhöyük, which has been under excavation by a British-American team since 1993 (*Science*, 14 December 2001, p. 2278). But the dig's conference room also provided a neutral place for the group's initial meeting.

The Palestinians made it to Çatalhöyük only after a series of adventures that included slipping out of Ramallah during the Israeli-imposed curfew, holing up briefly in Jericho,

Bridging the gap. Çatalhöyük archaeologists learn about Israeli-Palestinian heritage project.

CREDITS: (TOP TO BOTTOM) MICHAEL ASHLEY LOPEZ

ScienceScope

Science and Security The proposed U.S. Department of Homeland Security (DHS) ran a gauntlet of 11 House committees last week, with lawmakers recommending several tweaks in the department's research agenda (*Science*, 5 July, p. 27). In general, the changes are intended either to shelter existing programs or give science a higher profile within the new department.

The House commerce committee, for example, proposed keeping $2 billion for bioterrorism research at the National Institutes of Health and Centers for Disease Control and Prevention, which would work jointly with the new department on setting priorities. The House Science Committee suggested an undersecretary for science and technology and a research think tank, in line with a recent National Academy of Sciences report. The Armed Services Committee gave the department authority to set up a research center at one of the Department of Energy's nuclear weapons labs, with Lawrence Livermore National Laboratory in California the presumed favorite, although a Senate energy panel discussing the labs' role in homeland defense last week heard Senator Pete Domenici (R–NM) criticize the lab's track record on other projects.

House leaders hope that Congress will present the president with a bill by the first anniversary of the terrorist attacks. But that means reaching agreement with the Democrat-controlled Senate, which is working on its own blueprint. Still, as one biomedical lobbyist says, "it's useful that [the commerce committee] took note of our concern."

Bright Future Science is a major winner in a 3-year funding plan released by the U.K.'s Labour government this week. The budget of the government's Office of Science and Technology will increase by 10% per year, from a current $3.1 billion to $4.6 billion by fiscal year 2005–06. "These increases in funding are a clear signal that the government is prepared to put its money where its mouth is when it comes to science," says Robert May, president of the Royal Society. Decisions on how the funds will be divided among the six grant-awarding research councils and the central government labs will be made in October.

The biennial plan also contains money to improve science teaching in schools and universities and to bolster university research labs. Graduate students will also benefit from the largess, with annual stipends set to nearly double to $19,000.

Some researchers say that NASA should have learned at least one lesson from the Silver panel: Don't rush such a complex task. "These people had two meetings and were under tremendous pressure," says one scientist engaged in a lengthy National Research Council study of station science. Adds Acrivos: "That's just not enough time to do a good job." Despite its limitations, the report gives O'Keefe a rationale to ask for more station funding—if he chooses.

–ANDREW LAWLER

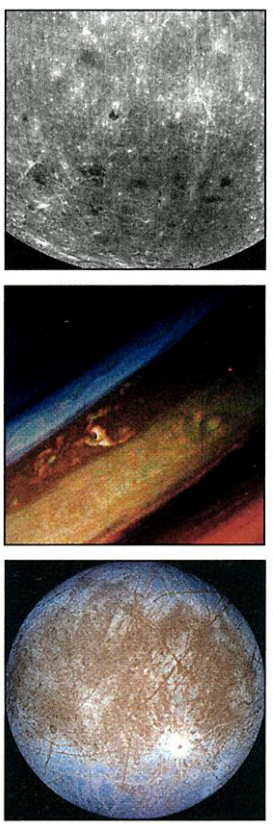
SOLAR SYSTEM EXPLORATION

Panel Plots Clear Path For Planetary Program

For the first time in its 40-year history, U.S. planetary science has a long-term, comprehensive road map for exploring the solar system. First stops would include the distant Kuiper belt and Pluto, Jupiter's icy moon Europa, and, to the surprise of many researchers, an ancient lunar crater. Now researchers must convince NASA, the White House, and Congress that those trips are worth the money.

The plan, drafted by the National Research Council (NRC) and laid out last week in a 417-page study, marks a radical shift in the way NASA plans solar system missions. In the past, the space agency has taken a piecemeal approach to planetary exploration, inviting scientists to pursue specific targets but never asking their advice on the big picture. That approach has resulted in tensions in recent years, as rival groups have pushed their own proposals and the field has suffered growing pains (*Science*, 4 January, p. 32). The NRC panel has tried to bring order to those competing claims by setting clear priorities—ranking 12 missions out of 27 candidates—and justifying them scientifically. The 15-member committee grouped potential missions into three classes: small ones costing less than $325 million, medium-sized ones costing between $325 million and $650 million and launched every 18 months, and larger flagship missions, flown once a decade (see table).

Convened by NASA and modeled on NRC's decadal astronomy panels, the committee—which formed a half-dozen subcommittees to tackle specific areas—solicited input from hundreds of planetary scientists scattered across the country. So far, reviews have been enthusiastic. "People are very supportive," says Mark Sykes, a University of Arizona, Tucson, astronomer who helped coordinate community input to the panel. "This was not just a backroom potboiler ... everyone had an opportunity to contribute." Adds panel member Joseph Burns, an astronomer at Cornell University in Ithaca, New York: "We felt it was very, very important to get the community to buy into this."



Take a number. The NRC report divides missions by cost and ranks those in the crowded middle-priced group.

One extremely satisfied customer is astrophysicist Alan Stern of the Southwest Research Institute in Boulder, Colorado. Stern is leading a $488 million project with Maryland's Applied Physics Laboratory to visit Pluto and the Kuiper belt by 2020. Rejected by NASA 2 years in a row, the mission has the unstinting support of Senator Barbara Mikulski (D–MD), who chairs NASA's spending panel, and other lawmakers. Last year Congress funded the mission against the wishes of the Administration, and Stern says that being named NRC's top priority for medium-class missions provides further momentum.

But hurdles remain. The NRC panel placed greater emphasis on Kuiper belt objects than on the Pluto system. Panel head Michael Belton believes that Stern's plan could still fill the bill, and Stern says the mission will examine one to three Kuiper belt objects as well as Pluto and

NEXT STOPS IN THE SOLAR SYSTEM*

Small
Cassini extension

Medium
Kuiper Belt–Pluto Explorer
Lunar South Pole with sample return
Jupiter Polar Orbiter with probes
Venus In Situ Explorer
Comet with sample return

Large
Europa Geophysical Explorer

*This list excludes planned missions to Mars.

CREDITS: (TOP TO BOTTOM) USGS/NASA; JPL/NASA; NSSDC/JPL/NASA

ScienceScope

Venus Trip An aborted European plan to send a mission to Venus has been resurrected. Last week, the European Space Agency's (ESA's) Science Programme Committee agreed to aim for the original launch date of November 2005 for Venus Express, the first flight to Venus since NASA's Magellan surveyed the planet in 1994.

Venus Express was cancelled 2 months ago after David Southwood, ESA's director of science, concluded that ESA's member space agencies could not meet the necessary tight schedule (*Science*, 31 May, p. 1585). But a reevaluation has made the agency more optimistic. Planetary scientist Fred Taylor of Oxford University says the ESA Council responded to a "massive wave of support" for the mission from scientists, politicians, and the general public.

However, one dark cloud remains: Budget woes might prevent Italy from making what ESA expects will be a substantial contribution to the Venus Express payload. The Italian Space Agency plans to decide by mid-October.

Mission Impossible? The surreal hunt for radioactive Soviet leftovers in the Republic of Georgia is entering a dangerous new phase. Officials in the strife-torn country are trying to track down abandoned canisters packed with strontium-90 before terrorists—or unwitting members of the public—lay their hands on the potent radioactive material.

In February, the International Atomic Energy Agency helped the Georgians recover two canisters, bringing the total number safely secured to six (*Science*, 1 February, p. 777). But last month, a 2-week follow-up search for as many as six more thought to be missing in the mountains near the breakaway Abkhazia region came up empty.

Officials now believe that the outstanding canisters, once the heart of thermogenerators used for remote radio relay stations, might be in territory outside Georgian army control. Negotiations are under way toward deploying a joint Georgian-Abkhaz team, with atomic agency support, to search for the canisters in what one official calls "lawless territory overrun with criminal groups." One key sticking point remains: "No one can guarantee the safety of the team in the field," says Zurab Saralidze, deputy director of the Institute of Physics in Tbilisi.

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