

NEWS

US space scientists rage over axed projects

Proposed cuts to NASA's science budget have unleashed a storm of anger from US astronomers and planetary researchers, who say the reductions would cause irreparable harm and drive young people from the field.

Under a NASA budget unveiled on 6 February (see *Nature* 439, 644; 2006), growth in science spending between 2007 and 2010 would be slashed by 17%. The budget proposed by President George W. Bush has yet to be approved by Congress, but many planned projects — from planet searches to a Mars sample return, as well as scores of individual research grants — are likely to be scrapped (see 'Some cuts proposed at NASA').

Planetary scientist Alan Boss of the Carnegie Institution of Washington says the cuts would devastate US space science — just as physics was jolted when the Superconducting Super Collider was cancelled in 1993, after \$2 billion had been spent on it. "High energy physics never quite recovered from that."

SOME CUTS PROPOSED AT NASA

Space Interferometry Mission to map stars	Delayed by three years
Terrestrial Planet Finder	Deferred indefinitely
LISA, searching for gravitational waves	Deferred indefinitely
Constellation X, a group of X-ray satellites	Deferred indefinitely
Mars Sample Return	Deferred indefinitely/cancelled
NuSTAR, a high-energy X-ray satellite	Will not proceed to development
Europa mission	Not proposed

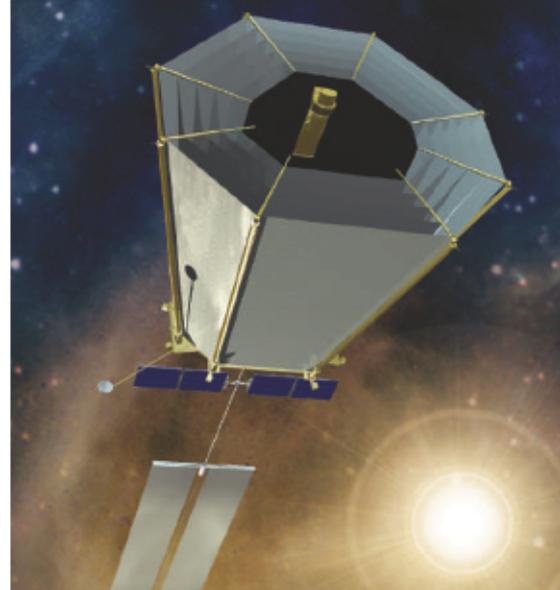
Scientists appreciate that NASA's administrator, Mike Griffin, is struggling to balance his books. Griffin explained during the budget press conference that the science cuts were necessary to pay for shuttle flights required to complete the International Space Station. "It's what we needed to do," he said regretfully.

But Jonathan Lunine, a planetary scientist at the University of Arizona, Tucson, sums up the view of many when he says he finds it "puzzling and frustrating" that NASA would divert money from science, widely considered its most productive enterprise, to keep the aged space shuttles flying. "It seems that NASA is trying to capitalize on its failures rather than its successes," says Lunine.

Particularly hard hit is the search for new planets, a field that appeals to young scientists, says Charles Beichman of the California Institute of Technology, Pasadena. NASA could keep developing technologies for the Terrestrial Planet Finder (TPF) mission given just \$10 million next year, he says.

Instead, the TPF's budget will be wiped out. NASA claims the mission is "deferred indefinitely", says Beichman. "The fact is, they are cancelling the TPF. They are breaking up the technology team."

After budget cuts, this picture of a mission to find earth-like planets is unlikely to become a reality.



There is fury not just at the size of the cuts, but at how they were decided and announced to the science community. Heidi Hammel, a planetary researcher with the Space Science Institute in Boulder, Colorado, says that NASA's advisory council was not operating during much of last year and so "there was absolutely no way to know how these decisions had been made. It's sort of like a black hole over there."

Disgraced cloner's ally is cleared of misconduct

Gerald Schatten was the Western face of Woo Suk Hwang's stem-cell team, which was recently exposed for faking the results of cloning experiments. On 10 February, Schatten was cleared of misconduct by his university, but chided for taking so much credit for research in which he was barely involved.

The University of Pittsburgh in Philadelphia decided to investigate Schatten in December after claims in a *Science* paper that he had co-authored with Seoul National University's Hwang turned out to be false (see W. S. Hwang *et al.* *Science*

308, 1777-1783; 2005 and *Nature* 438, 718; 2005). Schatten was senior author on the paper, and his gushing praise of Hwang's research was instrumental in raising the South Korean team's profile in the United States and elsewhere.

The full report has not been released, but in a public summary, the six anonymous investigators conclude that there is no evidence that Schatten knew about the fraud taking place in Hwang's lab, and they applaud Schatten for taking swift action when he became convinced that Hwang's team had

obtained eggs unethically, to create the world's first stem-cell line from a cloned human embryo back in 2004. But they are less pleased with Schatten's decision to name himself senior author on a paper for which his only contribution was editorial.

The summary also points out that Schatten signed a cover letter for the 2005 *Science* paper claiming that all 25 authors of the paper had read and approved of the manuscript, when very few of them probably had. And it notes that Schatten's co-authorship of a 2005 *Nature* paper (see B. C. Lee *et al.*

Nature 436, 641; 2005) reporting the first cloned dog, Snuppy, was based solely on the dubious suggestion "that a professional photographer be engaged so that Snuppy would appear with greater visual appeal". Although stopping short of misconduct, the panel describes Schatten's actions as "research misbehaviour".

Stem-cell researchers contacted by *Nature* generally approve of the report and its conclusions. "Dr Schatten was as much of a victim as the scientific community," says Evan Snyder, who directs the



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Biomedicine to sell itself as a local hero

Lobbyists for biomedical science are changing tactics in an attempt to reverse what they see as a worrying decline in funding. As well as talking generally about the benefits of biomedical research, they plan to tailor their arguments to local economic issues, close to lawmakers' hearts.

In his 6 February budget request, President George W. Bush asked Congress to keep funding flat for the National Institutes of Health (NIH) in 2007. This would mark the fourth consecutive year that NIH funding has not kept pace with inflation, and advocates are worried. "We're going to have to change the way we've done things in the past," says Jon Retzlaff, director of legislative relations for the Federation of American Societies for Experimental Biology (FASEB).

Lobbyists say they aim to dispel the notion that the NIH should be satisfied with the fact that its budget was doubled between 1999 and 2003. They claim that, because of inflation, the agency now has 10% less purchasing power than in 2003, and is on track to issue 3,000 fewer grants in 2007 than in 2003. They also argue that the budget doubling spurred many young people to enter biomedical science. The erosion of that money is leaving these new researchers out in the cold.

"We're eating our seed corn," says FASEB president Bruce Bistran, a molecular biologist at Beth Israel Deaconess Medical Center in Boston, Massachusetts. "We could lose a generation of researchers, or at least several years' worth."

So advocacy groups are going local, by showing lawmakers how NIH funding has benefited their states and home districts. Retzlaff says that FASEB will start with districts served by members of the powerful House budget committee, chaired by Republican Jim Nussle of Iowa. And the Association of American Medical Colleges will emphasize that the University of Pittsburgh Medical Center is the largest private employer in western Pennsylvania.

"There are a lot of places around the country that would like to emulate Pittsburgh," says Dave Moore of the association's office of government relations. "It's important for us to talk about the role the NIH plays as a driver for local economies."

Erika Check

The lack of communication extended even to projects that were being axed. For example, the California Institute of Technology's Fiona Harrison had an Explorer mission that was about to enter its development phase after two years of work. But in what Beichman calls an "egregious breakdown of the process", she learned during the press conference that her NuSTAR X-ray astronomy

satellite had actually been cancelled.

Harrison estimates that about 200 scientists are planning to send petitions or protest letters to NASA. Craig Wheeler, president-elect of the American Astronomical Society, says the society will argue that NASA's science projects should share in the generous increases granted to other research agencies for 2007.

But many space scientists are still just trying

to figure out what it all means — and they believe the draconian cuts won't even fix NASA's larger budget problems. Gregory Junemann is president of the International Federation of Professional and Technical Engineers, NASA's largest union. "Devouring everything else at the agency, while holding out for some future financial miracle, is irresponsible," he says

Tony Reichardt

Y.-J. AHN/AP

Happier times: close ties between Gerald Schatten (right) and Woo Suk Hwang raised the profile of the South Korean's cloning team.



stem-cell programme at the Burnham Institute in La Jolla, California. "Ultimately a collaboration comes down to trust."

Arnold Kriegstein, who directs stem-cell work at the University of California at San Francisco, agrees, but says he is disappointed that

Schatten, as "the first line of defence" against fraud, did not spot problems earlier. "It's hard not to think of Schatten as partly a victim, but on the other hand we were all let down by the lack of careful scrutiny."

However, George Annas, a

bioethics professor at Boston University School of Public Health in Massachusetts, is deeply disappointed by the report, which he calls "pathetic". Signing off a cover letter claiming all the authors approved of the manuscript was clearly wrong, he says. He feels that the race to clear high-profile research hurdles will always bring the temptation to cut corners, and that the report is too easy on Schatten: "The university is basically saying, we will treat you pretty good if you get caught."

Donald Kennedy, editor-in-chief of *Science*, is also uneasy. "The report raises questions," he says. "Nobody I know knows what

'research misbehaviour' is." He adds that *Science's* own review will look further into the legitimacy of Schatten's senior authorship on the 2005 paper. "I thought that he had been over there [to Hwang's lab], and that he was involved with experimental strategies," he says.

Schatten has kept out of the public eye since his break with Hwang in November last year. Like Schatten, officials at the University of Pittsburgh have declined to be interviewed. The full report has been submitted to the dean of Pittsburgh's medical school, Arthur Levine, who will decide whether Schatten should face disciplinary action.

Emma Marris and Erika Check