

It is the growing annual cost of these initiatives that worries many lab officials, who fear there won't be enough money left to conduct research or retain talented scientists. "There is no way we should sacrifice human expertise to brick and mortar," says Hagengruber, referring to the potential loss of talent if research budgets are cut. "One thing is certain," he says: "People die and you can't replace them" unless they pass along their knowledge. "But it's hard in Washington to sell the core program." Adds one lab manager: "Remember, politicians like ribbon-cuttings."

While the lab chiefs fret about taking on new responsibilities at the expense of personnel and research, defense officials want DOE to have modern tools and a clear plan to maintain the viability of the stockpile well into the next century. During discussions last fall about Reis's draft plan, defense officials complained that it lacked details and adequate benchmarks. Retired Air Force General Larry Welch, a member of a defense advisory panel that examined the program, complained that the rationale for NIF seemed to be its ability to attract and retain personnel, rather than its contribution to stewardship.

Defense officials finally accepted Reis's revised plan in March, but warned that it would likely need frequent adjustments.

**Keeping the numbers up.** At the laboratories, meanwhile, budget fears became acute when the Administration proposed only \$3.7 billion for the overall stockpile program in 1997 and about \$3 billion annually starting in 1998. That proposal brought howls of protest. Los Alamos director Sig Hecker and Livermore's Tartar complained in letters to Reis that an inadequately funded stewardship plan would hurt the staff and research at the labs. The directors also reminded Reis that the Administration had agreed just months earlier to the full \$4 billion a year funding. Cunningham and John Immele, program director of nuclear weapons technology at Los Alamos, warned Reis in a 31 January letter that the core program has already been cut by 25% since 1993.

Last month DOE convinced the White House Office of Management and Budget (OMB) to restore the program to its \$4 billion level. But OMB officials say that they do not know where the additional money would come from. Such a hedged promise leaves lab managers nervous about their future budgets. "They

face tough choices," says Sidney Drell, deputy director of the Stanford Linear Accelerator Center and chair of an advisory panel on stockpile stewardship. "The challenge is to balance the current work with a vision for the future."

Lab officials say they agree that today's initiatives are tomorrow's core programs. And they are quick to add that they don't want to look a gift horse in the mouth—thanks to stockpile stewardship, their budgets are stabilizing after falling sharply in the aftermath of the Cold War. But they are wary of politicians' promises of future funding levels. "It's got to be close to \$4 billion if it's going to work," says Tartar.

That message is being heard on Capitol Hill. Concerned that the Administration is skimping on the program, House and Senate authorization committees earlier this month boosted the \$3.7 billion request to \$3.9 billion, within a whisker of the figure desired by the labs. Such support, they say, could mean that the lab directors will not have to choose between their staffs and new facilities. But they also know that it will be a struggle to maintain a \$4 billion program as fears of Armageddon fade and politicians instead battle the deficit.

—Andrew Lawler

## SPACE BIOLOGY

### Surgery Confounds Mission Review

NASA officials have got themselves caught in a time warp. Last month, NASA Administrator Dan Goldin set up an independent panel to review a controversial U.S.–Russian project that involves sending monkeys into space. But the launch is scheduled for September, the panel can't meet until July, and surgical procedures must begin on the monkeys before the panel even holds its first session.

As a result, NASA is left in the awkward position of agreeing to the surgery even though it hasn't yet decided to continue supporting the mission. And the panel, instead of quieting opposition to the project, has become another rallying point for critics.

Goldin has asked the panel to examine the scientific and ethical standards of the \$33 million Bion program. The move was a response to concerns from Congress and animal rights activists about the treatment of the animals and the overall value of the program (*Science*, 5 April, p. 26). The panel is led by Ronald Merrell, who chairs Yale University's surgery department, and its findings are due by the end of July.

But medical personnel can't wait that long to prepare the two monkeys for their 14-day flight, the first of two missions. Any substantial delay would set back the mission for nearly 2 years, says Joseph Bielitzky, NASA's new chief veterinarian. The weather on the steppes of Kazakhstan, where the launch and retrieval would take place, is too cold after

September for the animals. Waiting until spring is also not an option: By then, the current group of monkeys will be too large, and a new group would have to be selected and trained. "That means a 20-month delay," Bielitzky adds. "If we stop the surgery, we don't fly the mission."

The first surgery, by a Russian team later this month, will implant head rings on the monkeys; at the end of June, a U.S. surgeon is

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—Joseph Bielitzky

slated to implant electrodes in the monkeys' bodies. Additional sensors will be implanted in July. The experiment is expected to generate a wealth of data on how microgravity affects the body.

People for the Ethical Treatment of Animals (PETA) has campaigned against the program, in particular the surgical procedures and conditions aboard the capsule. The group has argued that the project is cruel and of no scientific value, and the latest developments have added fuel to their fire. "It is worse than disingenuous to put together a so-called independent task force only to un-

dermine its power by going ahead with the surgery," says Mary Beth Sweetland, director of PETA's research, investigations, and rescue department. "It's pulling the wool over the eyes of congressional representatives." A staffer for Representative Steve Stockman (R–TX), who opposes Bion, charges that the task force "is just for show." He adds that while he and others may be too late to halt the September launch, they hope to block a second mission planned for 1998.

NASA officials defend the program, and Bielitzky says that during a recent trip to Russia he was impressed by the high quality of animal care: "They're basically treated like cosmonauts—they're even called cosmonauts." The monkeys would suffer no permanent damage from the mission or the surgeries, he adds.

Merrell says the panel won't comment on the controversy until it holds its first meeting. And that won't occur until 1 July because of federal rules that require giving 30 days' public notice of an upcoming meeting. "We need to meet first in public—we can't do a straw poll in ethics," he says. However, he notes the panel will still have time to advise NASA to withdraw from the project if that is its conclusion.

If NASA were to pull out, Russia could proceed on its own, says Joan Vernikos, director of NASA life and biomedical sciences: "If they can afford to do it, they will. It's their animals and their capsule."

—Andrew Lawler