

Two Thumbs Down for Space Station

Leaders of the space science community hit the space station with two severely critical reports last week in what appeared to be a concerted effort to bring the \$30-billion project to heel. The negative reviews came from the President's Office of Science and Technology Policy (OSTP) and the Space Studies Board, a 26-member committee at the National Research Council.

Both reports surfaced through leaks to the press, just as a third group—the National Space Council in the White House under Vice President Dan Quayle—was meeting to consider the station's fate. The OSTP document, signed by presidential science adviser D. Allan Bromley, was leaked to the journal *Space News* of Springfield, Virginia, while the "position statement" of the Space Studies Board, chaired by Louis J. Lanzerotti of AT&T Bell Laboratories, was leaked to *The Washington Post*.

The message in both cases was similar: New cutbacks have so weakened the station that its scientific value is now in question. The Bromley document argues that the "only scientific justification" for the station is to "find means of maintaining human life during long space flights." The OSTP found no commercial or scientific merit in the plans for microgravity or materials research.

The Space Studies Board was harsher, saying the stripped-down station "does not meet the basic research requirements of the two principal scientific disciplines for which it is intended"—life sciences and low-gravity materials research. And it suggests it might be better to spend the money on other projects.

These tough judgments, coming as the appropriations process gets started on Capitol Hill, may goad Congress into canceling or postponing the long-suffering station. But, then again, perhaps they won't. The station has had many setbacks since it was endorsed by Ronald Reagan in 1984, but it has some powerful friends, including the aerospace companies that hope to build it. Indeed, Bromley himself said in a speech on 15 March that he favors building the station, even though he doesn't expect it to make "revolutionary contributions" to science.

Since the earliest days, the Space Studies Board has been skeptical of promises that the station could be used to conduct first-rate research. In last week's critique, the board zeroed in on two particular technical goals set by a space program review chaired by Norman Augustine, president of Martin Marietta: studying the hazards of life in space and conducting a variety of other low-gravity physical experiments. The board

failed the station on both counts.

A subcommittee on biological research chaired by L. Dennis Smith, executive vice chancellor of the University of California at Irvine, gave the project low marks because the real scientific work wouldn't begin until the end of the century. Smith's panel doubted there would be enough power to run long-duration experiments and complained that the plans for including a centrifuge—essential for space biology—are vague. It also judged the crew size to be too small to run lengthy experiments and complained about the absence of a dedicated life sciences lab.

A second panel, chaired by Robert F. Sekerka, dean of the Mellon College of Science at Carnegie-Mellon University, noted that some of the most interesting proposed experiments in microgravity would probably be "more viable" on a platform other than the space station. The panel grumbled that experiments would not fare well on the station as now conceived because the movements of the crew, docking maneuvers, and other activities would disrupt sensitive low-gravity experiments. They also found the number of

crew members, the power, the data-handling capacity, and the lab space to be inadequate.

Several members of the Space Studies Board said the community has become more emphatic over years because it is "frustrated" by the mismatch between the constrained funding for certain scientific fields and the extravagant plans for the station. Astronomer Andrea K. Dupree of the Harvard-Smithsonian Center for Astrophysics says the space station "just doesn't make sense" as a scientific project, and "we're just deluding ourselves" by labeling it as such. Another board member, Larry Esposito of the University of Colorado, adds that there's a growing disappointment among space scientists that so much money is being poured into this program with so little to show for it.

Officials at the National Aeronautics and Space Administration have not yet given a detailed response. They were taking their case instead to the Space Council, which met on 18 March to examine the criticism and develop a policy. However, NASA's science chief, Lennard Fisk, issued a statement saying that, "We fully expect that as we build this station we will, in time, meet the requirements of the principal scientific research for which it was intended."

■ ELIOT MARSHALL

More Pain for British Physicists

Despite an international outcry, Britain's Science and Engineering Research Council (SERC) is to shut down its Nuclear Structure Facility (NSF) at Daresbury near Manchester at the end of 1992. About 150 scientists may lose their jobs. But even worse is the prospect that "nuclear physics will virtually cease in the United Kingdom in a very short time," says Professor Sandy Donnachie, head of the Nuclear Physics Board of the SERC.

That grim possibility has more than the British upset. President Bush's science adviser D. Allan Bromley was one of 500 eminent scientists who wrote protest letters when the NSF was first threatened in January. The NSF has "carved out for itself a pre-eminent position in the world," Bromley wrote.

The NSF probes atomic structure with relatively low energies of 20 million volts. Most recently, Peter Twin, professor of Experimental Physics at the University of Liverpool, used the machine to investigate superdeformed nuclei, made by smashing magnesium nuclei into carbon nuclei. The work won Twin the 1991 Wetherill Medal of the Franklin Institute and the Bonner Prize of the American Physical Society.

Such success comes from a facility that costs only about £7 million a year to run—not much by U.S. standards. But the expenditure

proved too much for the British government, which sent SERC chairman Sir Mark Richmond away empty-handed when he tried to extract more money to keep NSF going.

Researchers have lambasted SERC on two counts: for its secrecy and for its "betrayal" of a commitment. Professor Bill Gelletly, head of the NSF, claimed that the government had promised "that there would be a fair and open review and then the decision would be made." That review "has not happened," said Alan Leadbetter, director of SERC's Daresbury Laboratory, which houses the NSF. "We have had no access to how these decisions were made," said Gelletly.

The decision was probably forced on SERC by the Advisory Board for the Research Councils, which advises the Department of Education how to divide the government-funded research pie, during a secret meeting last weekend. Richmond made a plea for more money, and the board responded with 9 months of additional funding—enough to honor an agreement to host a joint experiment with France—but on condition that the lab be closed immediately afterward. Moreover, a new linear particle accelerator that had only just been brought into service at a cost of £2 million has had to be switched off, perhaps for good.

■ JEREMY CHERFAS