ect will meet its scheduled final assembly deadline of 1995–1996.

The mini-station proposal was meant to give a boost to commercial enterprise in space and provide an interim research lab pending the arrival of the big station on orbit. Certain experiments require an absolute minimum of jarring momentum. Delicate crystals, for example, can be shattered by vibrations from human or mechanical activity. The project had support from budget cutters in Congress and the White House who hoped it would serve as a cheap alternative to NASA's $16- to $30-billion station.

To clarify the government's choices, Congress last fall asked for two studies, one on space research needs and the other on costs. The cost study, conducted by the National Academy of Public Administration, also released on 11 March, finds that the direct and indirect federal expenditures for using the mini-station would be more than $2 billion, not $700 million, as its advocates indicated.

Meanwhile, the research needs panel, cochaired by Joseph F. Shea, a vice president of the Raytheon Corporation, and H. Guyford Stever, former director of the National Science Foundation, finds that there are enough vehicles planned or in production to support microgravity research in space without the little station. "Microgravity science is at an immature stage," the panel writes, making it difficult to foresee whether a special facility like this will be needed. Nor is there any evidence that "microgravity research would lead to significant space-based manufacturing in the next 5 to 10 years."

The NRC panel notes that other facilities are already available or on the way, including the European-developed Spacelab that fits in the Shuttle payload bay; NASA's "extended duration" shuttle orbiter that will be able to remain in space for 28 days; the private U.S. Spacelab project that by 1991 will create extra workspace in the shuttle; and free-flying labs proposed by the Europeans, Japanese, Chinese, and Soviets.

The panel rejected several other arguments for the facility, including the case for using it as a test-bed for equipment to be put on the big station. There would not be enough time between the launch of the mini-station in 1993 and the assembly of the big station in 1995–1996 to take advantage of the experience, the panel concludes. These judgments weigh heavily against the private lab, which was promoted by the Commerce Department and opposed by NASA (*Science* 19 February 1988, p. 856).

The Commerce Department's plan was to have the government lease 70% of the space from the owners, who would use the promise of a lease to secure development loans and market the remaining 30% of the space to other "tenants." The idea was originally proposed by Space Industries Inc. of Houston, which holds guaranteed launch commitments from NASA to carry a lab, if one exists, into space on the shuttle in 1993. After leaving the Commerce Department and getting an endorsement from the White House, the idea went to NASA for implementation, where it was converted into a standard procurement request, labeled the "Commercially Developed Space Facility" or CDSF.

Congress delayed funding it, asking instead that NASA commission the two studies in hand. NASA must now analyze them and send its own report to Congress by 15 May, laying out all the options.

"We were disappointed in their conclusions, but not surprised," says Joseph Allen, spokesman for Space Industries. "We feel that they don't understand the realities of the timing involved, which are different from those stated."

Allen is referring to the widespread view that, even if funding for the big station is fully approved this spring, NASA will not be able to get the space station in operation by the time it has promised, in 1996. If the big station does not become operational until 2000, for example, or if NASA's funding request is trimmed, the main assumption of the needs study would no longer be valid.

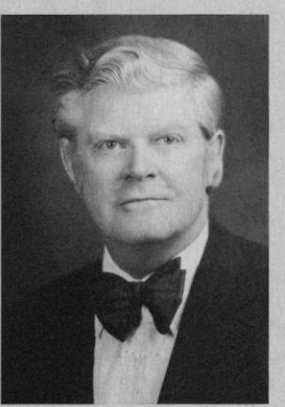
Another question the study raises implicitly but does not address is whether the demand for microgravity research—too small to justify a $2-billion facility in 1993—is large enough to justify a $16-billion facility in 1996.

■ ELIOT MARSHALL

Bromley in Line for Science Adviser

The White House finally appears to have settled on a candidate to be science adviser to President George Bush: Yale University physicist David Allan Bromley. Administration spokesmen declined to confirm Bromley's selection as *Science* went to press, but sources said his nomination would be sent to the Senate shortly.

A decision by the White House has been eagerly awaited. During the election campaign, Bush promised to name a science adviser early in his Administration and to elevate the post to Assistant to the President. But as the weeks went by with no nominee apparently in sight, scientific, industrial, and university leaders have been clamoring for action. "Settling this matter is important," says Harold Hansen, staff director for the House Committee on Science, Space, and Technology. "The longer they delayed it, the less impact he was going to have."



D. Allan Bromley

There have been rumors that Bromley at first turned the job down. In fact, one executive branch official speculates that Bromley wanted assurances that the science adviser would have a meaningful role in shaping policy and that the Office of Science and Technology Policy would be given an adequate operating budget and staff.

Although the White House was reportedly looking for a scientist from industry, Bromley has been seen as a front-runner because of his research ties with companies such as International Business Machines and American Telephone and Telegraph. He also has experience in the policy arena, having served on scientific advisory boards at the National Research Council, National Science Foundation, Department of Energy, and elsewhere. Bromley displayed his administrative skills when he served as vice chairman of the White House Science Council study on the health of U.S. colleges and universities. The report spotlighted the need for new research facilities and scholarships to encourage bright students to pursue careers in science.

A nuclear physicist by training, Bromley, 62, is the founder and director of Yale's A. W. Wright Nuclear Structure Laboratory. Since the beginning of his career Bromley has been an innovator in developing accelerators for studies on light and heavy nuclei, nuclear molecules, and related phenomena.

President Reagan's science adviser, William Graham, agreed to stay on until a successor was named. Now that the White House has apparently settled on a nominee, it remains to be seen whether the post will have the Cabinet status candidate Bush promised.

■ MARK CRAWFORD