

Hill that NASA would end up footing the whole bill for the new shuttle by gutting space science. Three prominent Republican senators—Slade Gorton of Washington, John C. Danforth of Missouri and Jake Garn of Utah, all heads of influential committees that oversee space programs—criticized the President's plan as "entirely too vague" on funding and questioned whether that meant space-science projects would be "cannibalized."

At a news conference, Fletcher attempted to allay concerns in the Congress and science community that space science might be cut back to help finance the replacement orbiter. "We expect that a large fraction of shuttle launches in the future will be scientific missions," he said. "We plan to keep the scientific missions at about the same level percentagewise of the NASA budget." He admitted, however, that delays were certain for all payloads during the next two years, as the agency works its way through the manifest of military and scientific cargoes. It is even possible, Speakes told the press corps after the President's statement, that as many as 15 of the 44 commercial and foreign payloads awaiting shuttle launchings may "go up"—though not for years and in an order to be determined by an interagency working group, dominated in all

probability by the Pentagon.

Doubts at JPL. In fact, space scientists learned in July that new weight restrictions on existing orbiters as well as the planned new one mean that neither the Comet Rendezvous Asteroid Flyby mission nor the Cassini orbiter of the planet Saturn can be launched from a shuttle. These, along with Voyager, Galileo and Magellan, are the offspring of JPL, which Caltech runs for NASA. The doubts about NASA's science program has filled JPL scientists with frustration and fear. "Would you commit yourself to 10 years of uncertainty?" asks Moustafa T. Chahine, JPL's chief scientist. While none of the lab's space scientists have left yet, Chahine is certain some will do so before year's end. What is needed to avoid that situation, he argues, is a strong commitment from NASA headquarters that planetary science will not be undervalued or underfunded.

At the Goddard Space Flight Center in Greenbelt, Maryland, its director, Noel Hinners, admits that researchers have dealt with uncertainties before. Keeping scientific and engineering teams together for two or three years without providing interesting new work is tough enough, he says, but the prospect of layoffs is "devastating to morale."

—IRWIN GOODWIN

His chief aim will be to sweeten the soured relations with university scientists, who are in the vanguard of attacks on SDI.

In July the Defense Department named Young's successor: Ted Berlincourt, who earned a PhD in physics from Yale University and after a stint at NRL devoted his career to the management of scientific research. He was director of the North American Rockwell Science Center, chairman of Colorado State University's physics department and for the past 14 years director of mathematical and physical sciences at the Office of Naval Research. He moved to the Pentagon basic research post on 18 August. Berlincourt's formal title, like Young's, has not been designated.

Hugh F. Loweth, deputy associate director for energy and science in the White House Office of Management and Budget, retired in June and immediately went sailing. He joined the Bureau of the Budget, as it was then called, in 1951 as a budget examiner. His introduction to science budgets came in 1955 when the National Science Foundation, then in its infancy, began planning for the International Geophysical Year (1957-1958).

Known in Washington science circles as "Mr. Budget," Loweth developed an insider's insight to science policy-making over the past three decades, closely watching every White House science adviser. Loweth considers Jerome Wiesner, President Kennedy's man, the adviser with the best connections to the Oval Office. "People in the White House were very comfortable with Wiesner," says Loweth, "perhaps because he linked science and education, and made both sets of issues so real and relevant." According to Loweth, Eisenhower frequently called on James R. Killian Jr and George Kistiakowsky "to provide a necessary balance to the kind of advice he was getting from the military-industrial complex."

His decision to retire came as a surprise to many at Federal agencies and in OMB, though Loweth asserts he started considering it two years ago. "It became clear to me that science was entering a period of diminishing returns in Washington," he explains. "Under Gramm-Rudman-Hollings, the budget would suffer a serious crunch and science would be a victim. It's been my observation that the science community cannot save government funding for science research without the help of allies from outside its own borders. It's going to require the pressure of political and industrial interests as well as public opinion to make the situation come out right."

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Washington Ins and Outs:

Key changes at pentagon and OMB

On 15 August Gerold Yonas left the Strategic Defense Initiative Organization, where he had been both chief scientist and acting deputy director since August 1984. Yonas gave up the job of acting deputy last April, with the arrival of Gordon A. Smith, former corporate vice president of Fairchild Industries and a director of its subsidiary, Fairchild Space Co. As deputy to SDI's director, Lieutenant General James Abrahamson, Smith will be point man for the technical aspects of the "Star Wars" program. At Fairchild, Smith, who has a PhD in physics from George Washington University, ran the Leascraft program, developed to place platforms in Earth orbit for commercial satellites. Leascraft was grounded when the Challenger space shuttle exploded.

Yonas joined SDI in August 1984 on a two-year hitch from Sandia National Laboratories, where he had been in charge of pulsed-energy sciences since 1972 (PHYSICS TODAY, October 1984, page 59). Instead of returning to Sandia, though, he decided to become vice president of Titan Corp in La Jolla, California, an advanced electronics

R&D firm. One of Titan's lures for Yonas is the company's work in pulsed power technology, which occupied him at Sandia. Of Titan's total of \$97 million in sales last year, \$12 million was in SDI projects. Federal law forbids anyone with Defense Department responsibilities for procurement and acquisition from representing corporate projects before Pentagon officials after leaving government. Though it is not entirely clear that he had such duties while at SDI, Yonas says he will "abide by the law 100%" by heading Titan's efforts to expand its high-technology products into commercial applications.

Leo Young, director of Research and Laboratory Management in the Pentagon, has joined the Star Wars program, though his new title has not yet been invented, awaiting the reorganization of SDI headquarters promised by General Abrahamson. In the Pentagon since 1981 and before that a physicist at the Naval Research Laboratory, Young is respected and trusted by academics and is a staunch defender of basic research and academic freedom.