The Selling of the Space Station

All the Washington heavyweights voted "Nay" on the space station, but Reagan voted "Aye"; the "ayes" had it

In December 1983, the National Aeronautics and Space Administration (NASA) won Presidential endorsement of a permanently manned space station over the opposition of almost everybody in Washington, and it happened for one simple reason: Ronald Reagan thought it was a great idea.

More specifically, it happened because NASA offered Reagan the vision of a space station that would symbolize American leadership and that would catalyze a new era of commercial expansion in space—and because opponents of the station managed to come across as parochial, penny-conscious, and devoid of any compelling alternative.

For all of that, it was a tough fight.

Of the station's many critics, probably the bitterest were the astronomers, planetary scientists, and particles and fields experts who depend upon NASA for their professional existence. Having spent the late 1970's in fiscal purgatory—a condition they blame on delays and cost overruns during space shuttle development—they were desperately afraid of a similar fiasco with the space station.

A sharp reminder of their feelings came last year from the National Academy of Sciences' Space Science Board. NASA administrator James M. Beggs had asked them, "Do you need a space station for science?" The board's reply was, in essence, "None of the scientific missions that we have planned for the shuttle were planned for a space station. Therefore, until you fly those missions, we do not need a space station."

Another vocal critic was presidential science adviser George A. Keyworth, II, who opposed the space station on the grounds that NASA should first explore the potential of the shuttle—which has already been paid for. At one point he called the space station and its emphasis on manned activities "an unfortunate step backwards" from advances in automation and remote control.

The Defense Department (DOD), despite ardent NASA wooing, consistently maintained that it saw "no military mission" on a space station. However, that phrase does not really capture the Pentagon's vehemence. Space, in the generals' view, was a zero-sum game: every dollar spent on a space station would be one dollar less for their space budget.

Finally, the objections of the White House Office of Management and Budget (OMB) were very simple: it did not want to spend the money.

Thus opposed by some of the toughest bureaucratic heavyweights in Washington, the space station might have been a dead issue—except that NASA made its case with remarkable skill and tenacity. By all accounts the credit for this performance goes to Beggs, the laconic Missourian who is widely regarded as the most politically adroit NASA administrator in the last 20 years. It was Beggs who revived the space station idea, which had lain dormant at NASA since the Apollo era, and it was Beggs who made the station NASA's goal as the "logical next step" after the shuttle. It was also Beggs who refused to let the agency get pinned down to a specific design or timetable for the station, which left him with plenty of flexibility to meet the station's critics.

To begin with, Beggs gave top priority to restoring NASA's credibility, which meant cleaning up the sloppy management practices that had plagued such projects as the shuttle and Space Telescope (*Science*, 8 April 1983, p. 172), and at the same time keeping the agency's attention focused on making the shuttle operational. The reward was a shuttle program that, glitches aside, has been an enormous success. Moreover, last December's debut of Spacelab proved to be an effective demonstration of manned orbital research. "I was a bit skeptical at first," says Lawrence R. Young of the Massachusetts Institute of Technology, principal investigator on Spacelab's vestibular experiments. "But it really showed the value of being able to communicate with the crew about what to do next, or how to fix a problem."

At the same time, Beggs gave priority to revitalizing NASA's space science and applications programs. These payloads are now being scheduled into the shuttle manifest at the rate of eight or nine per year, and two new planetary missions have been funded: the Venus Radar Mapper last year and the Mars Geoscience/Climatology Orbiter this year. Moreover, Beggs has repeatedly endorsed the long-range planetary goals of NASA's Solar System Exploration Committee (*Science*, 12 November 1982, p. 665).

Meanwhile, Beggs kept the space station itself at a low profile as he tried to get the space community as a whole behind him. To short-circuit NASA's chronic intercenter rivalry, he junked competing space station plans from the Marshall Space Flight Center and from the Johnson Space Center and organized a task force at headquarters to come up with an all-NASA plan.

The Pentagon's refusal to go along was a disappointment. But instead of continuing to fight, Beggs simply ordered task force director John Hodge to plan a station that could be justified on purely civilian grounds. Given the widespread concern about the militarization of space, that may have been just as well. It also turned out to be relatively easy: many commercial firms—and for that matter, many scientists—were quite enthusiastic. Hodge and team came up with a long list of missions that stressed the utility of the station as a hands-on laboratory, primarily in materials and life sciences; and as an orbital workshop, where an astronomical satellite, for example, might be brought in for maintenance, repair, or upgrading.

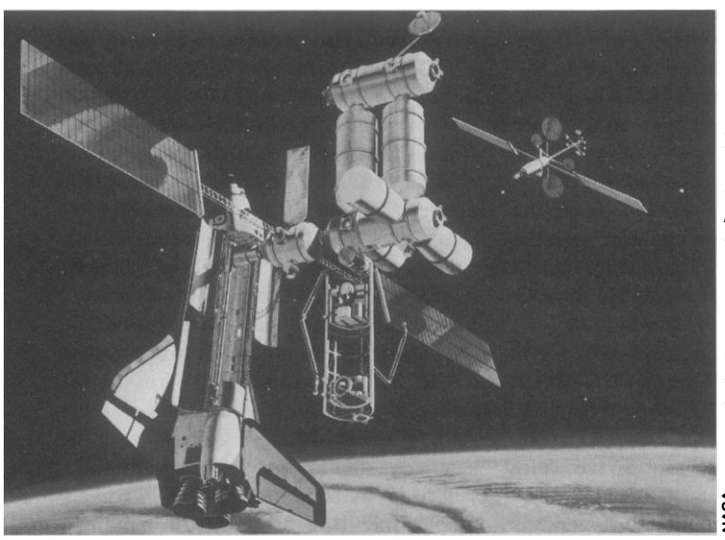
In response to heated reminders that NASA had rushed into shuttle development without consulting the shuttle's supposed users, Hodge, with Beggs' blessing, made a fetish out of *not* designing station hardware until the agency had firm consensus on mission definition and user needs. So far, NASA has settled only on the concept of a "flotilla": in the center would be a modular laboratory and habitation facility housing six to eight astronauts, and around it would float at least two unmanned platforms bearing sensitive instruments such as telescopes or automated modules for zero-gravity materials production. The estimated cost of this phase is about $8 billion, assuming launch around 1992. More extensive facilities could be added later for, say, the orbital assembly of large communications antennas; the total cost would then climb to $20 billion

sometime after the turn of the century.

Much of the Administration's debate on the space station was carried on privately within the Senior Interagency Group on Space (SIG-Space), a high-level committee set up by the Reagan space policy of 4 July 1982. While the SIG is not a policy-making body, it is considered important as a forum, the one place where all the bureaucratic players in space policy can have their say. In this case, there was lots to say.

OMB: "Eight billion dollars! You shouldn't be spending that kind of money. What's your second choice?"

NASA, pointing to the space policy's language about "leadership" in space and a "permanent presence" in space: "We *have* no second choice. How can we maintain a position of leadership without a space station? What do you suggest we do for a civilian space program?"



NASA

"The logical next step"

The space shuttle docks with NASA's permanent manned space station, shown here in one of several configurations now under study. In the background, a communications satellite is prepared for launch into higher orbit.

And so it went, for months.

Yet Beggs stayed low key throughout, declining to overplay his hand. Despite continued activity aboard Salyut, the Soviet's prototype space station, there was no agitation about "the Russian threat." Despite Keyworth's sudden declaration last year that the space station was too boring as a national goal, that NASA needed to commit to something transcendent, there was no talk from Beggs about a lunar base or a manned mission to Mars. He stuck to his theme of the space station as "the logical next step."

Meanwhile, there was the separate matter of the fiscal year 1985 budget. NASA wanted roughly $200 million to move into serious space station design. Beggs promised the OMB that if the station were approved, NASA would build it, make the shuttle system fully operational, *and* carry out all its science and applications responsibilities, without any increase over its current budget. On paper it was just barely possible: with shuttle development costs winding down and shuttle operations becoming more efficient, the agency could hope to free up roughly $2 billion per year. To reinforce that commitment, Beggs also promised that NASA would spend two more years on station design before letting the engineers bend metal—the idea being that careful planning could forestall the kind of delays and cost overruns that haunted the shuttle.

That did not exactly convince anyone at OMB. But by then it may not have mattered. Reagan himself was beginning to take an interest.

It is impossible to know just why or when Reagan decided to go with the space station. But several factors do seem to have entered in. First, Reagan is probably the most ardent space enthusiast to sit in the Oval Office since John F. Kennedy. When he watched the fourth shuttle landing at Edwards Air Force Base on 4 July 1982, he said that "this was the best day Nancy and I have had since the inauguration."

Furthermore, a glamorous project like the space station does fit in well with Reagan's rhetoric about America "standing tall again." And he apparently meant it when his space policy called for a civil space program separate from the military. He has already taken flack for militarizing space with his "Star Wars" missile defense ideas. Humbling NASA would not do much to balance that perception.

But finally, and perhaps most decisively, Reagan seems to be fascinated with the commercial potential of space. (*Science*, 30 September 1983, p. 1353).

The man who brought that potential to the President's attention was Craig L. Fuller, his assistant for Cabinet affairs. In the spring of 1983 Fuller had dropped in on a SIG discussion of private sector activity in space and had become so interested that he volunteered to write the SIG's report on the subject. On 3 August 1983, he brought Beggs and 12 corporate managers to the White House for a 90-minute luncheon meeting on space commercialization with the President. Most of the businessmen had been working closely with NASA on the space station; to Reagan they stressed its importance both as a research center and as a potential factory site for space-based materials-processing industries.

By all reports Reagan was enthralled. Some observers think that this is when he first started taking the space station seriously. While he promised nothing, he was quoted as saying, "I want a space station, too. I've wanted one for a long time."

On 1 December, at a meeting of the Cabinet Council on Commerce and Trade, Reagan was briefed on space station options prepared by the SIG. They ranged from no space station at all, to an Apollo-style crash program. Beggs followed with a presentation of NASA's proposal. "He was very eloquent," says one participant, who has not always been an ally of NASA. "He stated it at just the right level, with vision, but not trying to commit to something too ambitious." Afterward, OMB director David Stockman talked about deficits. Reagan mentioned Ferdinand, Isabella, and Columbus.

On 5 December there was a meeting on NASA's fiscal year 1985 budget request in the Cabinet room. Stockman once again pressed his case against the station. Reagan vetoed him and ordered that the space station be planned for in the budget. It would be a mistake not to approve it, he said.

And so, against all odds, NASA had won. Not because it had made a strong case, although that was certainly a prerequisite, but because it had offered the President something he wanted. In fact, NASA not only got its space station but it received the President's promise of a 1 percent real rise in its budget over the next 5 years—a commitment virtually unheard of for any agency but the Pentagon.

On 25 January, Reagan delivered his State of the Union address to a joint session of Congress and included the words, "Tonight, I am directing NASA to develop a permanently manned space station, and to do it within a decade. . . ."—**M. MITCHELL WALDROP**