launches. They called for an end to the use of expendable rockets when the capabilities of the shuttle are sufficient to meet everyone's needs. DOD and the Commerce Department both objected, wanting to preserve their existing right to launch national security and meteorological satellites by methods of their own choosing. Representatives of these departments succeeded in watering down OMB's language and defining the shuttle as merely the primary space launch system. "It is silly what grown people will sit around and do," says one of the participants in this debate.

Nowhere was bureaucratic self-interest as evident as during the debate over a space station. A commitment to begin work on it would have sharply increased NASA's budget over the next few years. The agency's lobbying reportedly included direct appeals to the President and the office of Edwin Meese, the President's top counselor. Hundreds of letters and telegrams were sent directly to OSTP, in what Keyworth calls "a carefully organized campaign." The OSTP staff counted 17 newspaper and magazine articles that predicted an announcement of the space station during the President's 4th of July speech. NASA administrator James Beggs stated openly that he believes "our next logical step is to establish a permanent manned presence in low-earth orbit" and that, with proper financial support, it could be achieved within the decade.

The problem was that NASA's enthusiasm is shared by no other federal agency and by few experts outside the government. An official at the Commerce Department says that "the last thing we need for meteorological satellites is a space station." The Department of State is uninterested unless it involves substantial international cooperation, but virtually all such cooperation is offensive to the Defense Department. Keyworth and Victor Reis, an assistant director of OSTP who was chairman of the space policy review, canvassed the scientific community and came up with little interest plus considerable fear that such an enormous undertaking would threaten funds for space science. Keyworth says that he has "yet to see competitive, well-thought-out plans not only for what it would look like but what it would do." Another participant in the debate says that "the military couldn't think of a use for it, and there sure as heck was no civilian requirement." Even the aerospace community expressed some concern that approval of construction might be premature.

Lacking any substantial support, NASA's ardent campaign for approval might even have backfired. Keyworth in particular says that "it was improper to put that kind of pressure on the President, completely improper. It does not exactly endear people in this Administration to the initiative." Keyworth is careful to say, however, that no one in the Administration has ruled out such a venture, only that it is not yet time for a decision.

In addition to the inclusion of a reference to the space station in the President's speech, NASA achieved several other small victories on it. An explicit ban on large engineering structures in

A Soviet Space Station?

In announcing his new space policy on 4 July, President Reagan made one prominent omission: he did not endorse the National Aeronautics and Space Administration's dream of building a permanent manned space station. Two days later, with timing that cynics would call suspiciously coincidental, a rumor surfaced in the RKO news service that the Soviet Union would soon launch a space station capable of carrying up to 100 people.

Well, maybe. The Soviets do like to honor special events, and 4 October of this year will be the 25th anniversary of the launch of Sputnik. Another possible occasion is the United Nations space conference in August. Some highly visible space effort does seem likely this year. But will it be a new space station?

The Soviets have indeed had a vigorous program of space station development for more than a decade, beginning with the launch of Salyut 1 in 1971. Since that time they have launched six more stations, four successfully. Three of the seven were probably military: they communicated over military frequencies, had low orbits to facilitate reconnaissance, and were manned exclusively by military personnel. The other four stations were primarily civilian. Likely activities included astronomical research, earth resources photography, and a wide range of biological and materials-processing experiments.

Until recently, two-man crews were ferried up to the Salyut stations aboard the venerable Soyuz capsules. In 1981, however, an improved version called the Soyuz T began to ferry three-man crews. The stations themselves have likewise advanced in capability. Salyut 6, for example, launched 29 September 1977, was the first to have two functional docking ports. This allowed the station to be resupplied by an unmanned "Progress" vehicle while the crew was still on board and also made possible visits by a second crew. Between 1977 and 1981, in fact, Salyut 6 was host to 16 separate crews. Salyut 7, launched this year, recently accommodated a French cosmonaut, the first from outside the Communist bloc nations.

For several years now, the Soviets have maintained that their goal in all this activity is to establish a permanent space facility as soon as possible. In June 1981 they docked the unmanned satellite Kosmos 1267 with the empty Salyut 6 and claimed this docking was a systems test of modular assembly in orbit, a harbinger of future permanent space stations. It would seem a logical step for them to take. However, last October *Aviation Week and Space Technology* announced that it had information that Kosmos 1267 was an antisatellite "battle station." The question remains unresolved.

In any case, a permanent Soviet space station seems likely in the near future. But a 100-man station by October seems most unlikely. For one thing, the Soviets just launched Salyut 7. Moreover, Marcia S. Smith, Soviet space specialist for the Congressional Research Service, points out that to lift the larger station they would need to use their superbooster, the "G," which has been under development for a decade. But the G has not yet been tested, and the Soviets follow a very conservative philosophy on hardware. They would probably want at least two or three successful test flights before putting an expensive space station on top. It might be possible to finish those tests before October, she says, but that is a very success-oriented strategy.

Besides, she asks, what would all those people do up there?

—M. MITCHELL WALDROP

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