activity, in 1979–1980. NASA officials point out that it was necessary to start on the project this year to make the scheduled launch in 1979.

Observers suggest that time considerations may not have been the only factor in the decision. The SMM project is considerably cheaper than the LST, with "run-out" or total costs of about $100 million in current dollars compared with $350 million for the LST. NASA may also have favored the SMM because it is to be the first in a series of projects to use standard components and, as one observer noted, it would allow the space agency to use a "Tinkertoy approach" to building space vehicles for research.

While space scientists would disagree over priorities in projects—the solar physics community is doubtless delighted about the SMM—there does appear to be strong general support for the LST. It seems to promise, as its advocates rhapsodize, a "quantum jump" in optical astronomy.

The LST, weighing between 7000 and 9000 kilograms, would be carried into space and launched into orbit at an altitude of 500 kilometers by the space shuttle. It could be serviced by the shuttle and components could be changed while it was still in orbit. The telescope could even be brought back to Earth for repairs or refitting and then returned to orbit. It is therefore regarded as a "permanent" orbiting observatory.

Plans call for a telescope with a 2.4-meter clear aperture. The design will not differ essentially from that of modern Earth-based telescopes. The LST will have an open end admitting light to the primary mirror at the rear, which will project the image onto a smaller mirror toward the front. The beam of light will then be directed back to output devices (television cameras and spectrum analyzers) in the rear. Data will be transmitted to the earth in digital form.

Power to operate the system will be provided by two solar panels. The mechanism to point the telescope will depend mainly on two "reaction wheels," which will spin one way, causing the axis of the unit to move the other.

The potential advantages over Earth-based telescopes are great. There would, of course, be no weather problems, and a TV tape-recording system would make continuous viewing possible. But the absence of the atmosphere and its blurring effect is what makes astronomers enthuse. They would get an unprecedentedly clear view of phenomena within the solar system and beyond it. Astronomers hope to be able to study celestial sources 50 times fainter than those observable with the most powerful Earth-bound telescopes.

Are the astronomers being unreasonably impatient? What, after all, is another fiscal year or two in the flow of intergalactic time? The astronomers' answer is that next year the cast of characters in the budget process may be different, budget pressures may be greater, and the LST may keep getting delayed. More concretely, a lot of time and money has already been invested in the project. Companies competing for contracts have already spent their own money—in some cases large amounts of it—on preliminary designs. Zero funding could mean a loss of interest by scientists and industry and a breakup of engineering teams that have been working on the project. When a decision is finally made in the future to press on with the LST it might be necessary to start all over again.

The LST has had some narrow escapes in Congress in the past, but this year the astronomers felt that Congress and NASA would give it a real start in life. At the moment, there seems to be little chance that the $12 million earmarked for the LST will be restored to the budget, but there are faint signs that a compromise is possible. If NASA is pressed by Congress, as it may be in House authorization hearings scheduled for early February, it seems just possible that NASA may scrape up enough money to get the LST at least slightly off the ground in the coming year.

—JOHN WALSH

Commoner Defies Damoclean Sword

Washington University's noted Center for the Biology of Natural Systems has survived a cliff-hanging week in which it was sentenced to death by the university administration only to be reprieved 5 days later, with its director, ecologist Barry Commoner, given a new appointment.

This bizarre series of events was apparently triggered, at least in part, by the university's appointment of Joel Mandelstam, professor of microbiology at Oxford University, England, as the next chairman of its biology department, effective next September. Commoner had been serving both as a professor of plant physiology in the department and as director of the Center, an extra-departmental unit which reported directly to a vice chancellor. His dual role bore the potential for igniting a power struggle in the academic bureaucracy, inasmuch as the Center occupied prized space in the biology department yet was not an integral part of the department.

Sources at the university report that Commoner was told by the administration last November that the Center would have to vacate its space because Mandelstam wanted control of it, but Commoner is said to have refused unless he got equivalent space elsewhere. The issue lay unresolved for some time, and Mandelstam, apparently miffed, backed out of the chairmanship after it was announced he had accepted it. (Florence Moog, chairperson since last July, has agreed to remain in office.)

Despite Mandelstam's departure, the administration informed Commoner on 23 January that the Center would be dissolved as of 1 February, its space would be put under the control of the biology department, and Commoner would continue his work as a member of that department. That appeared a likely death sentence for the kind of applied interdisciplinary work, involving social as well as natural scientists, in which the Center specializes. The Center, with an annual budget of about $1 million, mostly from government agencies with some foundation support as well, has a staff of more than 50, of whom about 15 have doctorates. It has studied such topics as nitrate pollution of rivers in the corn belt, agriculture and energy, and chemical carcinogens.

An angry Commoner told his story to the student newspaper, then refused all further comment pending a major speech he was previously scheduled to give on 28 January. Meanwhile, the newspapers and television stations in St. Louis, sensing drama in the extinction of a center which had performed many public services in the Midwest, turned their spotlights on the bureaucratic struggle. By the eve of Commoner's speech, which promised to be a major media event, the administration had had enough. It told Commoner the Center would not be dissolved. Instead, the Center will be put under the jurisdiction of the faculty of arts and sciences and Commoner, as director of the Center and as a newly appointed "professor of environmental sciences," will report to the dean of arts and sciences. "That's exactly as it should be," says Commoner. "It was pure Kafka."—P.M.B.