bringing the telescope back. "We could probably save a half a billion dollars by doing the refurbishment in space," says Samuel W. Keller, NASA's deputy associate administrator for space science and applications.

Of course, it is President Reagan's endorsement of the space station that makes it possible to contemplate such an option. The idea is to include facilities that would make the station a kind of orbital dry dock for space telescope, as well as for later space observatories such as the x-ray telescope AXAF or the infrared telescope SIRTF. (One House staffer calls this the single most important use for a space station.)

Ideally, space telescope would be brought to the station not by the shuttle but by a remotely controlled robot spacecraft known as an "orbital maneuvering vehicle" (OMV). NASA plans to ask for OMV development money in the fiscal year 1986 budget. It would be based at the space station, it would burn hydrogen/oxygen fuel—much cleaner than the shuttle's hydrazine for working around the telescope—and it would be able to boost the telescope well above shuttle altitudes, virtually eliminating the atmospheric drag problem. In short, it would remove the shuttle from the process entirely. The OMV would also make it much easier to implement a regular maintenance schedule.

The down side to this rosy scenario is that the initial modules of the station will not reach orbit until 1992 at the earliest, which is 6 years after the launch of space telescope. How long can the telescope wait for that first refurbishment? Will NASA have to bring it home anyway?

Impact on future missions. The science community is understandably nervous about all this. The savings from a space station will not come soon and are hypothetical in any case. Meanwhile, missions such as AXAF and SIRTF have been marking time for nearly a decade because of space telescope. What happens to them now if the maintenance and refurbishment budgets, now estimated at $50 million per year, start to skyrocket? Will the new missions be further delayed? Or will NASA or Congress or the White House finally have to put a cap on space telescope?

"It's going to be a continuing tradeoff," says Keller, "especially as this family of observatories develops. Given certain budgetary constraints, do you concentrate on one, or spread your resources over the whole spectrum? That's a value judgment that the community itself will have to make."

—M. MITCHELL WALDROP

Carcinogenesis Without Controversy

After a prolonged effort, the White House science office has published its guide to the science of cancer-causing chemicals. It was released for public comment in the *Federal Register* on 22 May. The purpose of the report, according to the chief editor Ronald Hart, director of the National Center for Toxicological Research in Jefferson, Arkansas, is to produce "a document saying what is agreed and not agreed in the science of carcinogenesis for use in risk analysis by government agencies."

This is the Administration's second attempt to write a scientific basis for a government cancer policy. The first was scrapped in 1983 after the White House received many critical comments.

"It was a massive task. People may not realize how massive," Hart says of the heavily footnoted and cross-referenced paper. "It nearly killed me." The reviewers this time have responded favorably.

One of the stronger critics, Perry Gehring of Dow Chemical, says the report "does a better job than any document addressing the subject prior to this." He was unhappy with the report's tendency to favor what he sees as an overcautious philosophy on cancer. For example, he thinks more weight should be given to human epidemiological data and says it is "utter nonsense" to regard data on rats as more valuable than human data. He believes the report tends to do this. Gehring also argues that the risk models cited in the report can "grossly overproject the risk we know man is incurring." Nevertheless, he concedes this is the "most comprehensive" paper on carcinogenesis he has seen.

Environmentalists who were sharply critical of the Administration's 1982–1983 draft report are pleased with this one. Ellen Silbergeld, a neurotoxicologist at the Environmental Defense Fund, says, "It affirms the validity of animal studies" as a way of identifying carcinogens. "It affirms a single model for the risk of chemical carcinogenesis, throwing out the old genotoxic-epigenetic notions [distinctions based on mutagenicity]." And "it says that chemical carcinogens are a major problem requiring regulation."

The report is broadly framed, which is likely to mute opposition. It does not break new ground but instead describes what the authors call the consensus on the "state of the science." The most controversial aspects are likely to be sections that rule out the use of "threshold" theories in figuring risks. Thus, the report says that if a chemical is known to cause cancer, one cannot assume there is any "threshold" level of exposure below which the effect does not occur.

Chemicals that cause cancer in lab animals are to be treated as "suspect human carcinogens." And the report says that it is best to estimate risks for these problem compounds in a linear fashion. When data are hard to get—the "usual case," the report notes—the correct approach is to extrapolate in a straight line from effects measured at high doses to calculate effects that might occur at low doses. That straight-line technique is the "preferred" one.

Hart believes these principles and the extensive discussion backing them up will receive broad support in the scientific community. Before publication, they were read by 81 experts from environmental groups, industry, academia, and government laboratories. According to Hart, the paper was rated "very good" or "outstanding" by 75 percent. "Five percent didn't like it, meaning that we achieved the 95 percent confidence level." Hart says jokingly: "That makes it a significant report."

—ELIOT MARSHALL

Federal Court Strikes Down Baby Doe Rules

A federal district court in Manhattan has pulled the plug on the government's notorious "Baby Doe" regulations. Judge Charles L. Brieant, Jr., said they were "invalid, unlawful and must be set aside."

The judge took his cue from a ruling by the circuit court of appeals which denied the government's plea for access to the hospital records of "Baby Jane Doe," an infant born with grave defects and for whom surgery was deemed undesirable.

The decisions firmly repudiated the government's legal rationale for the regulations, by asserting that Section 504 of the Rehabilitation Act, which forbids discrimination against the handicapped, was not intended to apply to medical treatment decisions involving infants.

If the government appeals the circuit court decision, it will have to go before the same body that denied its request for the records. An alternative is to attempt to go straight to the Supreme Court.

The suit was brought by the American Medical Association and five other medical associations. They broke ranks with a group of associations led by the American Academy of Pediatrics (AAP), which had decided they could live with the regulations. The AAP never thought they were legal, though, and says it is "pleased" with the ruling.

To date, there have been no complaints testing the Department of Health and Human Service's intervention strategy under the new regulations, which were issued in February.

However, the same day as the Manhattan decision, another treatment case was decided in court. A Bronx judge ordered an operation to relieve the intestinal blockage of a Down's syndrome baby born on 8 May. The parents opposed the operation on the baby, who also has cataracts and a heart defect, but it was recommended by the bioethical review committee of the North Central Bronx Hospital. The hospital brought the case to court.

—**Constance Holden**

Western Academies Seek Help for Sakharov

In an unprecedented move, the science academies of the United States, France, Britain, and Sweden have sent a joint telegram asking the Soviet Academy of Sciences to help secure proper health care for Andrei Sakharov and his wife, Elena Bonner. Sakharov, who was exiled to Gorki in 1980, began a hunger strike on 2 May to try to pressure the Soviet authorities to permit Bonner to leave the country for treatment of a serious heart ailment.

The telegram, sent on 24 May, also asks the Soviet academy to help secure permission for Sakharov and Bonner to return to their scientific work, and says that "Such a move would significantly reinforce the bonds among scientists of all nations."

In the meantime, the U.S. National Academy of Sciences is monitoring Sakharov's situation before deciding whether to go ahead with plans to seek a new scientific cooperation agreement with the Soviet academy (*Science*, 18 May, p. 696).

—**Colin Norman**

Creationism Defeated in Louisiana Senate

The much heralded trial over the constitutionality of the Louisiana creationism law, which was due later this summer, may never happen. On Thursday 24 May, the state senate voted to repeal the law by a 21 to 16 margin. The House of Representatives education committee is due to consider a similar repeal bill on 7 June. If approved, the bill will go to the house floor on 14 June.

The impending trial over the creationism law, which was enacted in July 1981 and mandates equal presentation of evolution and creationism, is likely to cost the state at least $1.5 million in legal fees, and more if the case is lost. A similar law was struck down in Arkansas in 1981.

This potential financial burden and the governor's desire to entice biotechnology companies into the state, are said to be influencing lawmakers' decisions.—**Roger Lewin**

Appeals Court Upholds Legal Block on Experiment

A federal appeals court in Washington, D.C., has upheld a decision by Judge John J. Sirica to halt a gene-splicing experiment proposed by researchers at the University of California (*Science*, 1 June, p. 962).

The university filed an emergency motion to overthrow Sirica's decision on the grounds that it misconstrued the legal arguments and that the university would suffer irreparable harm if the experiment were delayed. The appeals court ruled, however, that the university "has not made a sufficient showing, either as to the merits or as to its irreparable harm to warrant the extraordinary and expedited relief sought."

This means that the experiment, proposed by a team headed by Steven Lindow of the University of California at Berkeley, will not now take place until the fall, at the earliest. The experiment involves spraying potato plants with bacteria modified to prevent the formation of ice crystals in plant tissues. The testing can only be done in the spring and fall, when freezing conditions are right.

Neither Sirica's decision nor the appeals court ruling concerned the potential hazards or benefits of the research. The decision was based strictly on whether the National Institutes of Health followed the correct procedures in approving the experiment.—**Colin Norman**

EPA Overhauls Pesticide Office

"Office directors shouldn't have life tenure in one office," says an aide at the Environmental Protection Agency (EPA), explaining why Edwin L. Johnson was reassigned out of the Office of Pesticide Programs in late May. Johnson has been in charge of pesticides for 9 years, having survived three presidential administrations and many public controversies. Johnson now becomes head of the Office of Water Regulations and Standards, whose director, Steven Schatzow, moves into Johnson's old job.

At the same time, the EPA hierarchy is asserting more direct control over pesticide actions. Henceforth, according to a memo issued in late May, the pesticide office will have to get clearance from the assistant administrator over its head for first-time uses of chemicals on foods and for "special reviews" of problem chemicals, also known as RPAR's (Rebuttable Presumption Against Registration proceedings). Close observers of EPA think the agency is beginning a general shake-up of the pesticide program.—**Eliot Marshall**