tory, which will carry a burst detector quite similar to the one on Ginga. According to Gerald J. Fishman of NASA's Marshall Space Flight Center, chief scientist on this instrument, the reactors could trigger the detector as often as five times per day. Unlike the Ginga instrument, fortunately, this detector will be programmable. "So I'm optimistic we can find a software solution" to reject the spurious events, says Fishman.

Nonetheless, it was the threat to the Gamma Ray Observatory that precipitated efforts by the NASA astrophysics division to get the classification lifted. The request was approved by an interagency intelligence council this past summer. A nonclassified memorandum from observatory program manager Arthur J. Reetz, dated 29 August, brought the subject officially into the open. Several technical studies of the problem are now being prepared for publication.

Meanwhile, there remains the issue of the Soviet reactors themselves. The gamma-ray interference issue has recently been taken up by such groups as the Federation of American Scientists and the Committee to Bridge the Gap, both of which are seeking an international ban on any kind of nuclear reactors in space. They are after bigger game, of course: by banning reactors in space they hope to hamstring the U.S. Strategic Defense Initiative, which would need reactors to power the weapons of its orbital missile shield. Nonetheless, says Steven Aftergood, executive director of the Committee to Bridge the Gap, "This is another compelling reason to ban nuclear power in orbit." ■ M. Mitchell Waldrop

Collapse of a Radio Giant

"It was a very pretty telescope," says National Radio Astronomy Observatory (NRAO) director Paul Vanden Bout, with more than a trace of sadness in his voice. "It was light. It had a lacy structure." It rose out of a remote mountain valley near Green Bank, West Virginia, overshadowing its companions at the NRAO facility there. It was one of the largest radio dishes in the world.

And at 10 p.m. on the clear, calm night of 15 November, it collapsed. With no warning whatsoever, its two supporting pylons gave way. The great white mesh paraboloid, 300 feet (92 meters) in diameter, crumpled downward into a tangle of steel spaghetti. The falling debris tore open the roof of the control room underneath, sparing the computers and other equipment inside, and leaving the telescope operator frightened, but unscathed.

"We're baffled," Vanden Bout told *Science* shortly after his initial survey of the wreckage. "There are probably as many ideas around [about what happened] as there are astronomers."

One conjecture is that the telescope may have been shoddily built in the first place. Another is that the telescope may not have been properly maintained, particularly with NRAO's chronically tight budgets in recent years. Vanden Bout, however, does not subscribe to either conjecture at this point. It is certainly true, he says, that when the telescope was built in 1962 it was considered a stopgap instrument, a way to get the then-fledgling observatory up and running as quickly as possible. Construction was rapid and cost only $850,000—cheap even then. Contrary to an early report from the Associated Press, however, it was not a slapdash expansion of a smaller dish; the latter was actually a separate, 42.5-meter instrument of similar vintage that is still in operation.

After the Big Bang.

As for deferred maintenance, says Vanden Bout, that is a real problem for the observatory. "But we confine it to things like roads," he insists, not items that would really matter to the science. In particular, he says, "the 300-foot got inspected regularly. We repainted a section of it in rotation every summer, like on a bridge. We kept the bolts in good condition. I can't say that because of lack of money we didn't do what we needed to do."

Whatever the final explanation, he says, it will probably have to await the results of a formal inquiry now being organized jointly by the National Science Foundation, which funds NRAO, and by the Associated Universities, Inc., the university consortium that operates the observatory on behalf of NSF.

Meanwhile, the 300-foot telescope itself will be sorely missed by the astronomical community. It is by no means the only large radio telescope in the world. The 305-meter radio telescope at Arecibo, Puerto Rico, for example, is more than three times larger. But it is the only one to combine such a large size and sensitivity with the ability to see all the sky in the northern celestial hemisphere. (Arecibo is immobile, and is thus comparatively restricted in what it can see.)

Perhaps its most dramatic finding came in 1967, shortly after pulsars were discovered: it was the first radio telescope to detect the furiously rotating pulsar at the center of the Crab nebula, which is the remnant of a supernova that exploded in 1054. But in the main, says Vanden Bout, "it was not an instrument for big breakthrough discoveries. It was a survey instrument, a road map instrument." Indeed, on the night of its collapse it was within a week of completing a new map of the entire northern sky at the 6-centimeter wavelength. It was much in demand for such activities as a survey of galaxies at high red shifts, or a survey of neutral hydrogen in our own galaxy and in other galaxies, or in one notable case, a survey of radio sources that might prove to be new gravitational lenses.

Ironically, at the time of the collapse, the NRAO had already embarked upon a study of possible replacements for the 300-foot telescope, as well as for the 42.5-meter instrument. Officials are hesitant to say what form the replacements might take—or how much they would cost—but the events of 15 November have clearly given them an incentive to complete their report.

■ M. Mitchell Waldrop