registering voters—that is not permitted to regular nonprofits. "We wanted to let our voting members know who is really supporting us," says Visco.

No more Mr. Nice Guy

It may seem odd that this new "targeted advocacy" is intensifying while NIH's budget is increasing. Usually, coalitions start to fragment when resources are declining. David Moore, government liaison for the Association of American Medical Colleges, explains that after "two extraordinary years, with huge increases [for NIH]," more money has been "pumped into the system," but it hasn't been distributed at the same rate to all constituencies. The result, he says, is an "increasing level of frustration, ... some of it justified," among those who feel that they have been left behind.

Joan Samuelson, leader of the Parkinson's Action Network, adds that the more outspoken disease lobbies have set an example that others are now following. "We were self-sacrificing" wallflowers in the past, she says, but "the diseases that have accumulated the most research support have been very single-minded about their efforts. ... That seems to be the way to get the job done." And JDF's representative William Schmidt says, "There was a time when we were very good citizens and really went up to the Hill with one message—overall [funding] for NIH. But it becomes hard as you see other disease areas advance far beyond where we are." Like many, these advocates think that political pressure makes good things happen. Or as Samuelson says, "With enough money, [scientific] potential can be created in almost any area."

That view is "naïve," Varmus says. "Money is an attractant, but it's not sufficient. You really have to be convinced that there are good experiments to do." He plans to explain at the upcoming House and Senate hearings why he thinks scientific judgment works better than political directives in stimulating research. NIH also hopes to spell out this rationale in the public report it is preparing.

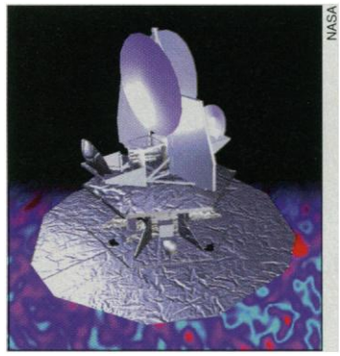
As for the growing list of targeted research demands, Varmus says: "The way to respond ... is not to be defensive, but to have a big workshop, have all the institute directors there, have the leaders in the field, ... and see if we can identify new opportunities." In that case, advocacy groups can count on one thing at NIH: There will be lots of big workshops.

–Eliot Marshall

ASTRONOMY

Follow Up on Findings, Panel Tells NASA

A panel of astronomers is urging NASA to follow up quickly on the field's recent successes. Convened by the National Research Council (NRC) at NASA's request, the 50-member panel, chaired by Patrick Thaddeus of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts, has urged NASA to give priority to space-based instruments that would build on some of the most stunning feats of recent years: the mapping of the cosmic microwave background, the discovery of galaxies in the early universe and planets around other stars, and the detection of objects that are almost certainly black holes.



Eagerly awaited. The MAP mission will chart details of the microwave background radiation.

The panel, which briefed NASA space science head Wesley Huntress on 8 April and will formally present its report in a month, did not draw up a wish list of instruments. Instead, it described the areas of science that should receive top priority in NASA's space science plans. "We picked the science ideas that have staying power," says Thaddeus. But its recommendations give a boost to several missions that are now being planned, from new gamma-ray satellites to a successor to the Hubble Space Telescope.

NASA asked for the list because most of the projects astronomers recommended in their last priority-setting exercise, the so-called decade report issued by the NRC in 1990, are already under way. The next decade report, which will list priorities for both space- and ground-based facilities, is not due until 2000. In the meantime, says Alan Bunner, a science program director in NASA's Office of Space Science, "[we] needed priorities ... and we needed them on a fairly short time scale." To speed things along, the NRC panel, convened just a year ago, debated research priorities in space science only.

At the top of the list for the next 10 years or so, said the committee, is refining a map of the microwave background radiation. In the early 1990s, the Cosmic Background Explorer revealed tiny temperature variations in this uniform bath of microwaves—the imprint of primordial "seeds" that grew into great structures in today's universe. A finer scale map of these ripples would yield clues not just to structure formation but also to the density and makeup of the universe, Thaddeus and his colleagues say—implicitly nudging NASA to keep a planned satellite called the Microwave Anisotropy Probe (MAP) on track for its August 2000 launch.

The report also recommends following up on recent spectacular successes in finding galaxies near the time they were born. Bunner calls it "strong endorsement for the [proposed] Next Generation Space Telescope and for a U.S. role in the European FIRST"—the planned Far Infrared and Submillimeter Space Telescope.

While listing the search for more planets around other stars as their third priority, the astronomers also urge some restraint, recommending that NASA hold off on trying to image planets like Earth. The planets currently being found are giants, the size of Jupiter or larger. NASA's proposed 1998 budget includes funding for a small, space-based interferometer—a linked array of telescopes—which could pick out indirect clues to planets as small as Earth. Actually photographing such planets, however, would require a large, costly interferometer positioned out near Jupiter, a dream that Thaddeus says should be deferred. "First, we should put our arms around as many planets as we can," he says, "before doing the very difficult thing of finding terrestrials."

The final priority he and his colleagues cite is measuring the properties of black holes—objects that have recently moved from the domain of theory to that of observation. Both star-sized black holes and the giant black holes at the centers of some galaxies trigger bursts of x-rays and gamma radiation as they suck in material. Bunner says the recommendation that NASA focus on the study of these objects supports the need for the Gamma-Ray Large Area Space Telescope and the High Throughput X-ray Spectroscopy Mission, two proposed midsize projects.

The astronomy community hasn't had a chance to react yet to the NRC committee's assessment of its field. But Bunner says, "We're pleased with the process—it wasn't cantankerous and it achieved consensus." Whether these science recommendations will guide NRC's next decade report is not clear. "The decade process, once started, has a life of its own," says John Bahcall of the Institute for Advanced Study in Princeton, New Jersey, who was chair of the previous decade report. But Thaddeus is hopeful: "I suppose the next decade committee could throw this in the wastebasket. But in a well-ordered world, this would be grist for their mill."

–Ann Finkbeiner

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