and we've changed with them," says the official. For instance, the 1994 Republican takeover of Congress, the arrival of an unexpectedly strong economy, and the recent appointments of Lane and White House Chief of Staff John Podesta have all changed the dynamics of the science funding debates, observers say. They also cite increased pressure from research groups concerned about stagnation in nonbiomedical research budgets (see graph on p. 953).

**Back to basics.** Clinton emphasizes long-term investments.

The fierce battles that followed Newt Gingrich's arrival as House Speaker in January 1995 "were highly distracting because it put [the White House] on the defensive," recalls an Administration official who worked in the Office of Science and Technology Policy at the time. "There was a lot less time to promote a science agenda." Indeed, some science policy watchers remember Clinton's 1995 State of the Union speech—whose only mention of science was a one-sentence attack on Congress for appropriating "$1 million to study stress in plants"—as a low point. "I spent way too much time ... answering indignant letters and e-mail from irate plant physiologists," remembers Rick Borchelt, a White House press aide at the time who now works on a NASA project to boost public literacy in science.

White House officials bounced back from that embarrassment, however, putting muscle behind initiatives ranging from global change to supercomputing and this year's darling, nanotechnology. Those efforts helped forge bipartisan working relationships with key pro-science Republicans, such as Senator Pete Domenici (NM), chair of the Senate Budget Committee, and Representative John Porter (IL), chair of a House Appropriations subcommittee that oversees the NIH budget. At the same time, lawmakers worried about the growing imbalance between spending on life sciences and that on other fields—including Senators Bill Frist (R–TN), Connie Mack (R–FL), and Jay Rockefeller (D–WV)—crossed party lines to sponsor several bills calling for a doubling of federal R&D spending in all areas. In 1997, the heads of 23 research societies—along with a few executives from high-tech industries—put their weight behind the concept, asking politicians to recognize the "interconnectedness" of scientific progress and to ensure that engineers, chemists, and other nonbiomedical researchers had the necessary resources. Today, Gingrich—a fellow at the American Enterprise Institute in Washington and an energetic campaigner for boosting basic research—says such developments "helped create an environment that was very bipartisan when it came to science."

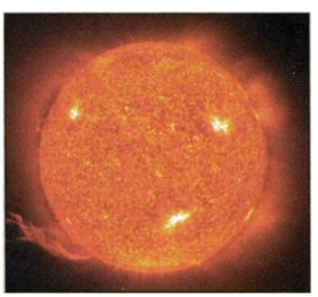
Such efforts, however, ran headlong into financial constraints, especially legislated budget caps designed to restrain federal spending and pay off the budget deficit. "The caps provided very little wiggle room for brash science initiatives," notes a Republican Senate aide. But a surprisingly strong economy—and an array of accounting tricks that allowed Congress to spend more than the caps allowed—opened the door to some unexpected research gains. In 1998 and 1999, to the delight of biomedical lobbyists, the big beneficiary was NIH, racking up $2 billion increases in both years.

NIH may be forced to share the wealth this time around. Armed with data showing the widening gap between the biomedical sciences and other disciplines, Lane, Colwell, and science society heads hit the streets last fall, reminding anyone who would listen of the need for "balance" in the federal R&D portfolio. One important ally, lobbyists say, was Podesta, who last year took the lead in criticizing congressional efforts to cut some science programs. His and Lane's fingerprints, outsiders say, are all over a speech that Clinton gave last December that signaled this year's focus on balance. "I would like to make this point very strongly, because it's one that I hope to make more progress on next year: It is very important that we have

## Solar Missions Brighten NASA's Hopes For Space Science Research

This year, for a change, NASA gets to share in the budget wealth. The White House request for a $435 million increase, to $14.04 billion, marks the first time that the Clinton Administration has granted the space agency a significant increase.

Nearly half the boost—$206 million—would augment the current $2.2 billion for space science projects, including Mars exploration and a bevy of small missions. The centerpiece is a $20 million down payment on "Living With a Star," a sun research program that aims to use a flotilla of spacecraft to track solar storms and coronal mass ejections, which can interfere with communications and electric power grids. Some of the satellites would unfurl solar sails, using the solar wind for propulsion rather than chemical or nuclear sources. NASA space science chief Ed Weiler hopes to receive more than $500 million for the program over the next 5 years.



**Hot science.** New satellites will expand knowledge of the sun.

NASA is also seeking $78 million on top of this year's $248 million for Mars exploration. Part of the money would build a system of communications satellites that could help prevent a repeat of last year's devastating loss of two Mars spacecraft. And Weiler says he is open to a review of the entire Mars effort, including whether it is wise to focus primarily on a mission that would collect and return martian rock samples. "Maybe we shouldn't put all our eggs in that basket," he says.

The agency also is setting aside nearly $200 million—a $42 million boost—for the next series of Discovery micromissions chosen through peer review. And it will beef up work on instruments to detect life on other planets and moons. It also wants to restart work on missions devoted primarily to pushing technology rather than science. The effort, called "New Millennium," was deleted last year by the White House and Congress.

NASA is requesting 10% more for its $275 million life science program, with the increase spread equally between biomedical and microgravity research. But earth science funding would remain roughly flat at $1.4 billion, with the bulk of that money going for the Earth Observing System constellation of satellites.

At NASA's budget roll-out, Administrator Daniel Goldin emphasized ties between the agency and the National Science Foundation as well as with the academic community. A planned study of the agency's interaction with academia is intended to lead to greater participation by researchers in NASA projects.

–ANDREW LAWLER

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