

HIGHLIGHTS OF NSF'S 1995 BUDGET (\$ in millions)

Account	FY '94 level	FY '95 request	House level	Senate level	% change over 1994
Research	2164	2349	2217	2300	+6.3
Major equipment	NA	70	105	150	NA
Academic facilities	105	55	100	300	+186
Education	570	586	586	606	+6.3
TOTAL	2983	3200	3141	3490	+17.0

to delay payments on some housing programs and new national service awards. This will free up enough money this year to cover a big increase for NSF and the \$2.1 billion NASA had requested for the space station.

The result is a pleasant summer surprise for NSF. The Mikulski subcommittee approved a 17% increase in the NSF budget, a \$506-million rise that is \$348 million more than the House approved and \$290 million more than the \$3.2 billion the Administration requested (see table). The biggest change from NSF's request would be the \$200-million boost in its program to support major new instrumentation and renovate aging academic facilities. Mikulski

less the President asks for the full amount in his 1996 budget and puts NSF at the helm of a multiagency program.

As for strategic research, the report accompanying the bill notes approvingly that NSF has "embraced" the ideas that Mikulski floated last fall, and it "commends" Neal Lane, NSF's director, for leading NSF and the scientific community "in a strategic planning process." NSF recently gave the panel status reports on eight such initiatives—in global change, high-performance computing, advanced manufacturing, advanced materials processing, civil infrastructure, biotechnology, environmental research, and science education. The Mikulski panel was

chided the White House's Office of Science and Technology Policy for failing to come up with a comprehensive plan to deal with a problem that was identified in the mid-1980s. The new bill is intended to force the Administration's hand: It would rescind \$190 million of the \$300 million destined for NSF un-

so impressed that it proposed giving the director authority to spend up to 10% of the amount budgeted for each strategic initiative on "innovative cross-disciplinary research and education programs" chosen through competitive merit review. Speaking before the subcommittee marked up the bill, Mikulski said, "We believe that Neal Lane's efforts [in this area], and that of his associate directors, should therefore be rewarded."

This combination of budget increases and toned-down rhetoric has won over Mikulski's academic critics. Last year, for example, Cornelius Pings, president of the Association of American Universities (AAU), which represents most of the country's leading research universities, said Mikulski's advocacy of applied research was "definitely a mistake." But last week Howard Gobstein, AAU's vice president for research, told *Science* that "I don't think people recognize the extent of her fundamental support for basic research."

Mikulski's subcommittee approved the bill on 14 July and sent it to the full committee, which passed it 3 hours later. The Senate may vote on the legislation as early as this week, and few changes are expected. After that, a House-Senate conference committee must iron out differences between the House and Senate versions of the bill.

—Jeffrey Mervis

SPACE SCIENCE

A Rejuvenated Companion for Ida?

At first glance, it looked like an unlikely May-December marriage. From the pitted and scarred visage of the asteroid Ida revealed last year by the Galileo spacecraft, planetary scientists estimated the age of the 58-kilometer-long body at perhaps 1 to 2 billion years. But, at a diameter of 1.4 kilometers, Ida's tiny companion seemed too small to have survived battering by asteroid-belt debris for much more than 100 million years. And therein lay a paradox, since Ida's moon is widely assumed to have formed along with Ida, when an impact blew a larger parent body to bits.

But a close-up image of Ida's satellite, recently provided by Galileo, hints at a possible solution: Ida's companion may have had more than one life, having been blasted to smithereens and then reassembled, possibly several times. Indeed, it may still be in the process of rebirth after its latest demise, "sweeping up little bits around Ida—remnants of itself and maybe remnants [blasted from] Ida," says Clark Chapman of the Planetary Science Institute in Tucson, Arizona, a member of the Galileo science team.

To Chapman and other planetary scientists, the most important new information comes from the satellite's unexpectedly smooth shape. As a rule, the smaller a solar



A gravel pile? The relatively smooth shape of Ida's satellite suggests that, rather than a chunk of rock, it is a loose aggregation of debris.

system body is, the more irregular its shape. The icy nucleus of Comet Halley, the tiny satellites of the giant planets, and small asteroids like Ida itself are all lumpy and misshapen—evidence that the gravity of bodies tens or even hundreds of kilometers across is too feeble to pull them into a smooth, spherical shape.

But Ida's satellite—the smallest solar system object imaged in such detail—is "as

smooth as objects 100 kilometers across," notes Chapman. That suggests to him that, instead of being a single chunk of rock, it is a loose ball of boulders, gravel, and sand agglomerated by its own feeble gravity from debris left in orbit around Ida after a catastrophic impact destroyed a larger predecessor satellite.

To confirm this picture, researchers will have to get down to the details of the satellite's geology—sizes, depths, and ages of craters, for example—to tease out more clues to the satellite's history. A particularly intriguing feature is what Chapman thinks could be the track of a recent accretion event, a chain of small craters leading down and to the right from the image's largest crater. A blast of impact debris from Ida, he says, is the most likely source of such a crater chain.

If the tiny moon does prove to have been smashed to bits and then reassembled, it will join a list of Lazarus bodies that includes two of Saturn's moons, Janus and Epimetheus. The low density of these 100- to 200-kilometer satellites, which skirt the outer edge of Saturn's rings, suggests that they are loose aggregations of ring particles, which in turn may be the debris from an earlier moon destroyed by a giant impact. Destruction and rebirth may be the coming thing for the small bodies of the solar system.

—Richard A. Kerr