

much headway in bringing the agency's biggest project, the space station, under his control. A bungled attempt to reshape the station made headlines in *Space News* during the summer, when Goldin ran into a wall of political resistance. It began on 12 August when Griffin said he had been asked to lead a reanalysis of the station. Planners were told to keep the basic schedule but undertake a design overhaul to make it more efficient. Within 6 days, according to *Space News*, the redesign effort was scrapped. The team under Griffin was instructed to forget about redesigning the station, but to look at ways of improving management or possibly building a new heavy lift vehicle to carry the structure into space on fewer flights. Aerospace companies, station supporters in Congress, and even White House aides apparently intervened to get the redesign stopped. Congress was getting ready to vote on the 1993 appropriation for NASA, so

this was not the best time to begin redesigning the station.

Goldin told *Science* that his review team is considering ways to improve management of the station and the merits of an unmanned heavy launch system using shuttle technology. His idea is to remove the orbiter, place its engines at the rear of the big external tank that carries liquid fuel, and extend the tank's front end 90 feet to create a huge cargo area. Goldin thinks that, if Congress voted the funds, NASA could build a heavy lifter in 5 years and use it to ferry a pre-assembled station to orbit "with many fewer launches." While it might work better than the present plan, it's not clear that this approach would be any cheaper. But Goldin says, "We're going to take a good, hard look" at it.

Pike sees this incident as "emblematic" of Goldin's exaggerated faith in the power of management. There may be no clever way to spend less money and build the station

NASA has promised. If you create a new launcher to carry the station, Pike argues, you must redesign the station to take advantage of the vehicle—and that adds to the cost. Big space projects, Pike says, "have some intrinsic and intractable problems...that you can't escape just by smart management."

While skeptics in the space community are concerned that Goldin may be unrealistic about potential cost savings, most are eager to see his approach tested. Many would agree with Friedman of the Planetary Society, who says: "I think Goldin's doing things that are very new, and I find them refreshing....He's confronting reality....The old philosophy of 'just get your budget as high as possible and don't worry about paying [for programs] until later' is changing." But will Goldin's reforms achieve the miracle NASA needs? Friedman is not yet about to make a prediction: "Only time will tell."

—Eliot Marshall

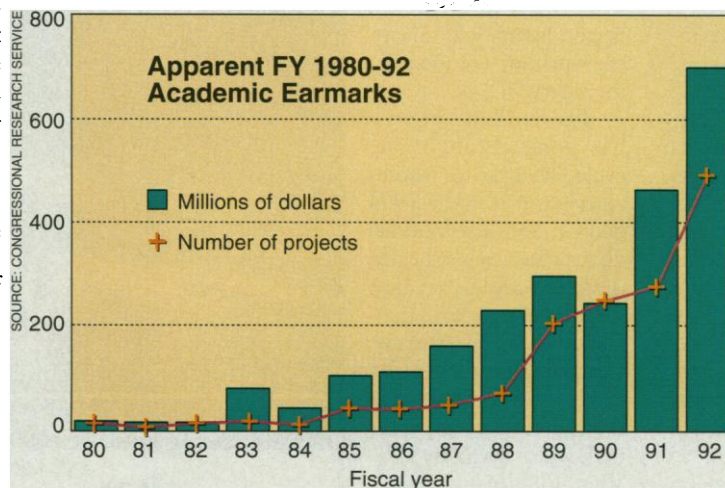
CONGRESSIONAL EARMARKING

George Brown Cuts Into Academic Pork

Congress acquired a bad habit in the 1980s—steering academic grants to specific schools or institutions favored by powerful politicians. When legislators are taken to task for doing this, the standard response is that they are just helping underprivileged universities get a fair share of federal grants. According to this logic, peer review, the normal system for parceling out R&D funds, is dominated by the elite universities and earmarked funding—or academic pork—is needed to redress the balance. Now comes Representative George Brown (D-CA), chairman of the House Committee on Science, Space, and Technology, a long-time enemy of academic pork, with evidence that explodes this Robin Hood myth. Armed with new statistics, Brown even managed to trim some pork from an appropriations bill earlier this month, and he's vowed to go after earmarked funds in the future.

In a study released last week, Brown's committee examined academic pork in appropriations bills approved over the past 12 years (1980-1992). The result: Earmarked projects go almost as often to rich and successful universities as to the needy. Indeed, the analysis of \$2.5 billion worth of special grants revealed no clear rationale in the handouts—other than a tendency to reward states that are well represented on the appropriations committees. The big winners of academic pork, by rank, were Massachusetts, Oregon, Pennsylvania, Loui-

siana, New York, Florida, Iowa, West Virginia, Alaska, and Mississippi. They received nearly half of the \$2.5 billion earmarked for academic projects, according to the study, which was written by James Savage of the University of Virginia and Genevieve Knezo of the Congressional Research Service.



At the trough. Congress has earmarked \$2.5 billion for special R&D projects since 1980, half of it in the past 2 years.

Contrary to the view that the earmarked funds go to the needy, Savage found that during the period he analyzed almost one-third (32.2%) went to states that ranked among the top 10 recipients of federal R&D in 1990. And the academic institutions that ranked among the top 50 in terms of federal R&D support got 26.2% of the earmarked money—cashing in on both the peer-reviewed and earmarked funds. Brown calls this "double-dipping."

The report also undermines the notion

that earmarked grants are used to help backward institutions catch up with the pack. Savage checked out this possibility by tracking the performance of 37 institutions that received \$20 million or more over the past decade, watching to see whether they improved their rank as federal R&D recipients. He saw no clear pattern of improvement. Although nine rose, eight declined and one stayed the same. The data were not adequate to rank the others.

The trend toward earmarking, Brown said in a statement issued last week, is "a disease" that has "spread like a cancer" through the appropriations process in the past decade. But Brown and the senior Republican on the science committee, Robert Walker (R-PA), recently stepped up their efforts to excise the growing tumor, and on 17 September, they won a surprise victory. During a vote on the final version of the energy and water bill, the appropriations committee asked the House to approve a list of earmarked grants worth \$94.8 million to 10 projects in eight states. None had been discussed in committee or on the floor. Brown argued that these proposals ought to

be scrutinized by scientific peers, or at least by the regular legislative committee, before being funded. The House voted by an unexpectedly big margin (250 to 104) to back Brown and scuttle the pork list. While this decision may put a small dent in the earmarking of academic projects this year, it may not make a significant change. Rick Borchelt, spokesman for the House science committee, says 1993 is still expected to be a "banner year" for pork.

—Eliot Marshall