the plum for Florida State, which is expected to cost some $55 million over the next five years. On a weekly television show called "The Lawmakers," over the Public Broadcasting Service on 14 June, Fuqua said: "All these projects have to be put into a proper perspective of whether or not it's pure science we're talking about or is it certain facilities that the government or the Congress feels necessary."

Still another contretemps involves Georgetown University, a private Catholic institution perched in one of Washington's most fashionable residential areas. It took its case for a $220-million coal-gasification and fuel-cell demonstration facility directly to the Department of the Army and DOE for funding, then to Congress for approval—also without appearing in the Pentagon and DOE budgets for fiscal 1985 and without any peer review.

Such antics by prestigious universities confounds and infuriates science policy makers such as Keyworth and Roland W. Schmitt, chairman of the National Science Board, which oversees NSF. Keyworth told Fuqua's committee that the Federal government would have to help rebuild the nation's university research infrastructure and cautioned that any capital investments by the government should not be disconnected from the country's most important research needs and from sound cost-containment principles. To facilitate this, he announced that the White House Science Council, which reports to him, is starting a study under David Packard, chairman of Hewlett–Packard, to examine the policy questions affecting the health of higher education—among these, the Federal government's ability to ensure a productive research infrastructure. "While we have no intention of even suggesting an entitlement program for research," said Keyworth, "neither do we see much sense in forcing the most productive researchers and teachers to waste so much of their time playing the grantsmanship games."

Pilot program. Obviously annoyed by the spate of academic pork-barreling, Schmitt and the Science Board, at their monthly meeting on 22 June, directed NSF to introduce a new program in fiscal 1986 that would provide financial support for construction and renovation of academic research centers in three big new programs that the foundation would introduce in fiscal 1986, which begins on 1 October 1985—biotechnology, engineering and advanced scientific computing. In its resolution calling for the pilot program, the science board said that while programs had been started recently at several Federal agencies, including NSF, to help universities buy up-to-date research instruments, none had

Education

Shakhashiri: Entertaining lecturer moves to NSF

NORMAN LENBURG

On 8 May, a few days before submitting his resignation to the White House as director of the National Science Foundation, Edward A. Knapp announced the appointment of an assistant director for science and engineering education. The new NSF executive is Bassam Z. Shakhashiri, professor of chemistry at the University of Wisconsin, where he is renowned as a dynamic lecturer and innovative director of the Institute for Chemical Education. He succeeds Laura P. Bautz, who has been acting assistant director since last October. Bautz returns to her former job as director of NSF's Division of Astronomical Sciences.

One of six NSF posts requiring Presidential approval and Senate confirmation, the education directorship seems destined to assume increased importance and visibility as the Reagan administration and Congress channel more money into the agency's precollege activities and graduate fellowships. The job had been abolished when the NSF education directorate was ravaged in the Reagan administration's first-year budget cuts. The staff was cut to 15, and they were left to carry out perfunctory functions.

In Senate–House conference on 26 June, the NSF appropriation for science education was raised to $87 million from the administration's budget request for $75.7 million, the increases to go mainly for larger stipends to more graduate fellows and for additional teacher training programs. Of the total appropriation, $54.7 million would go to improve precollege science and mathematics instruction—the same as in fiscal 1984. This includes summer workshops for teachers, improved undergraduate education for teachers and graduate research fellowships, as well as for materials development and research in science and math instruction techniques.

With his background and qualifications, Shakhashiri is likely to win Senate approval without great difficulty. As the organizer and first director of the Institute for Chemical Education, he has brought hundreds of high-school science teachers and industrial chemists to the Wisconsin campus at Madison for workshops to devise course content, write new syllabi, prepare computer programs and develop laboratory demonstrations.

A native of Lebanon, Shakhashiri attended the American University in Beirut for one year and came to the US in 1957. He received a BA from Boston University and MS and PhD from the University of Maryland. He taught general chemistry at the University of Illinois, where he was twice named outstanding lecturer of the year in the late 1960s, before joining the Wisconsin faculty in 1970. Phillip Certain, Wisconsin's chemistry department chairman, hails Shakhashiri as a "phenomenal chemistry educator." For his efforts, Shakhashiri has won teaching prizes the past six years. His final lecture each fall is titled "Once Upon a Christmas Cheery in the Lab of Shakhashiri." In it he makes use of Christmas ornaments, balloons and other playful items to demonstrate scientific concepts in the tradition of children's science shows begun 160 years ago by England's Michael Faraday. For the past three years he has conducted "Chemistry Can Be Fun" workshops and lectures for precollege students. His outreach efforts have included collaborating on a series of handbooks on chemistry demonstrations for teachers at all levels and helping develop an interactive exhibit called "Everyday Chemistry" at the Chicago Museum of Science and Industry.

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