criticism from conservatives that NSF was attempting to impose a national curriculum. "We don't want one curriculum at either the undergraduate or at the precollege level. We need high quality options for states to select from and adopt."

These new thrusts may be popular on Capitol Hill, but, by staking his claim for a big burst of growth for education, Shakhashiri is perceived by many in the foundation as putting education in direct competition with the support of research. The research directorates dominate the NSF budget and have traditionally wielded the most power in agency politics.

Resentment against education at NSF was blunted in most recent years because a growing budget for NSF overall exerted a rising-tide-raises-all-boats effect. But in the present budget atmosphere, a common rank and file view within the foundation is that more for education means less for research. As one staff member put it, "Anybody in the foundation who advocates robbing somebody else to fund his own program—that does not sit well."

On that subject, Bloch, who as director must balance demands from all sectors of the NSF budget, is explicit: "If there are any rivalries between Shakhashiri and others in the foundation, I have no patience with that." But what of rumors that there is growing friction between Bloch and Shakhashiri? Neither man seizes an invitation to discuss it. But Shakhashiri does comment on the broader issue of his relations with the NSF hierarchy in general, saying, "It's had its toll. But the environment is somewhat less hostile than it was."

As for Bloch, he sometimes seems to support Shakhashiri's vision. He consistently describes education and human resources as a high-priority area and says that he is "upset that when Congress talks about education, they stop at high school. When academics talk about education, they start at the graduate level." On the other hand, alluding to the 1970s when the NSF education program ran into difficulties that contributed to its being dismantled, he says, "I'm worried that we will move at a rate that we can't maintain [and want to make sure] that we don't do dumb things."

Asked to characterize the revived education program to date, Bloch seems equally ambivalent—or at least cautious. He is "satisfied in general," he says, but adds "we don't have the results. It's too early to assess how useful it's been. How do you judge?"

Although Congress has annually given more than Bloch asked for, many members have also asked questions about the impact of the program. The directorate last year had to respond to Senate Appropriations Committee concern over reports that textbooks and teaching materials were less than adequate. There were also suggestions that NSF failed to evaluate the teaching materials objectively after they had been developed and was weak in promoting the use of materials of superior quality. For now, the questioners appear satisfied with the directorate's reply that relatively few of the new programs are out of the pipeline yet and that a rigorous evaluation process is in place to guarantee quality control. Nevertheless, as the resuscitated NSF education effort continues to mature and its funding grows, demands for accountability may grow more insistent.

In addition, there are signs that the legislators are dissatisfied that in precollege education support, NSF offers what one congressional staff member termed "the only game in town." A main purpose of hearings held early this year by the House Science, Space and Technology Committee was to explore what other agencies were doing and might do in the cause of science and math education. Energy Secretary James D. Watkins' well-informed interest in the subject seems to have made him the star of the show, and since then he has been arguing for a stronger role for DOE in education (see box).

So an emerging question may be: Will Shakhashiri, harassed from within, receiving mixed signals from on high, and no longer necessarily the Administration's only advocate for science education, stay the course? If it's up to him, he says, "I intend to stay here, slug it out, achieve the kind of advance we've talked about."

But behind the bravado is another note. Shakhashiri is quick to remind journalists that he is a tenured professor at the University of Wisconsin at Madison on leave of absence. Like many NSF officials before him, he has an academic career on hold while he serves in Washington; he also feels, not unreasonably, he has other job options.

Shakhashiri is going into his sixth year at NSF, he notes. He has tried to keep up in his academic field and his third book on classroom demonstrations in chemistry was published this year. And 6 years is an unusually long time for an academic to be away from his home campus. This year Shakhashiri's department voted not to extend his leave further. "That came as a big shock and a big surprise to me, so I went out to Madison and met with the department and they reversed themselves." But threat of such action in the future hangs over his head.

It's worth the worry, Shakhashiri says, if he can keep making progress toward that $600-million goal. What he says he is counting on to get there is that Americans are realizing what the deficiencies in science and math education "mean for their children's prospects and the future of the country and are finally going to demand effective action." He is also counting on the new Bassam Shakhashiri. ■ JOHN WALSH

John Walsh, a former staff writer for Science, *is now a free-lance journalist living in Bethesda, MD.*

Research Chief to Leave DOE

Robert O. Hunter, Jr., the controversial director of the Office of Energy Research, will be leaving the Department of Energy (DOE) within the next several months, according to Bush Administration officials. Hunter reportedly agreed in early October to give up his post following a meeting with Energy Secretary James Watkins. It is expected that he will continue to run DOE's research division until Watkins can find a suitable replacement.

DOE officials could not confirm at *Science's* press time that Hunter would resign from his job of overseeing the $1.7-billion general science and basic research program. But insiders told *Science* that the White House already is supplying Watkins' office with the names of potential candidates who might succeed Hunter. Hunter could not be reached for comment.

Hunter's departure is not totally unexpected. Since taking the energy research job in August 1988, he has come under increasing fire (*Science*, 15 September, p. 1182) from some researchers and members of Congress over his attempts to change the direction of various research efforts, including magnetic confinement fusion energy and geoscience. ■ MARK CRAWFORD

Department of Energy

Robert O. Hunter, Jr., *reportedly will be leaving the department.*