campuses will be classified "unless the university agrees to it."

The grants will be distributed over the next 3 to 4 years. Two additional awards will be made in coming weeks to academic consortia for research in rocket fuels and optical materials.

—R. JEFFREY SMITH

NRC Tries to Reduce Public Access

A decision by the Nuclear Regulatory Commission (NRC) to reduce public access to meetings and reduce the availability of transcripts from closed meeting is causing a stir in Congress. In late April the NRC voted 3-2 to immediately implement these rule changes proposed by chairman Nunzio Palladino, without first holding public hearings on the matter.

The agency's action comes on the heels of hearings held in mid-April by Representative Edward J. Markey (D–Mass.), chairman of the House Energy subcommittee on conservation and power. At that time Markey characterized Palladino's proposed reorganization plan for the agency as reflecting a "bunker mentality." Besides calling for replacing the present five-member commission with a single administrator, Palladino also has advocated more exemptions from federal public disclosure rules.

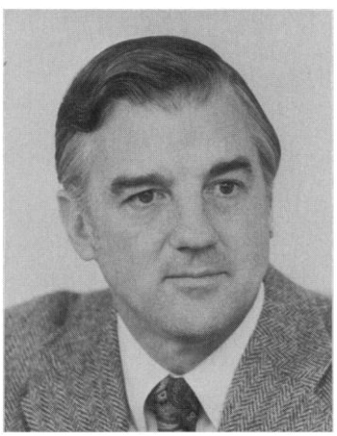
Markey criticized the agency's plans to narrow its definition of a "meeting" between board members to exclude briefings and exchanges not related to taking a formal stand on issues before the commission. Congressional and NRC sources say the commission's action was based in part upon a recent U.S. Supreme Court decision involving the Federal Communications Commission (FCC), in which the court found that the Sunshine Act did not apply to all gatherings of FCC members.

Despite the potential fallout in Congress from the effort to crimp the flow of information, the NRC commission, with the exception of Palladino and James K. Asselstine, voted to implement these changes without first taking public comment. However, there is some chance that the agency will reverse itself, sources say, to avoid political backlash.—MARK CRAWFORD

Bok Puts Computers in Their Place

The arrival of personal computers in the office, at home, and on college campuses has been heralded as a wave of new technology that will transform not only the way people work but also the way they learn and think.

Harvard University's Derek Bok has a different idea. In his annual report to the Harvard Board of Overseers, Bok challenged exaggerated claims for computer technology. With reference to computers on campus, he quoted Richard Clark, a leader in evaluating the effects of educational technology



Derek Bok

as saying, "The best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition."

In a reference to historical technology hype, Bok went back to Edison. "Thomas Edison was clearly wrong in declaring that the phonograph would revolutionize education. Radio could not make a lasting impact on the public schools even though foundations gave generous subsidies to bring programs into the classroom. Television met a similar fate in spite of glowing predictions heralding its power to improve teaching."

Bok gave some ground when he said computers on campus do hold promise of inspiring "work and thought about teaching methods and the process by which human beings learn." Computer assisted instruction, he noted, is often most effective when it consists of carefully worked out teaching programs that may require as many as 200 hours to write. It may be, he suggested, that more effort is devoted to such efforts than to ordinary teaching preparation. "As more people begin to use technology for educational purposes, they are bound to think more carefully about the best ways to help students absorb new knowledge and master new intellectual skills," he said. "One simply cannot produce good software for teaching without paying close attention to the details of how best to present the material to enhance learning and sustain student interest. This is not characteristic of traditional instruction."

However, Bok also said that computers can be seen as limiting students' imaginations because computerized instruction often restricts them to a set of responses that appear on the monitor. Citing law, business, medicine and other sciences as examples of disciplines in which computerized teaching could be useful in carefully chosen cases, he spoke clearly of limits. "With all its powers, the computer cannot contribute much to the learning of open-ended subjects like moral philosophy, religion, historical interpretation, literary criticism, or social theory—fields of knowledge that cannot be reduced to formal rules and procedures."

"Humanistic learning has suffered enough from ill-considered efforts to ape the scientists by concentrating on what is quantifiable, verifiable, and value free," he observed. "Do we not have a foretaste of things to come in the eagerness with which classicists fall upon computers for the analysis of ancient texts and the glee with which music instructors talk about teaching composition by machine?"

All in all, Bok, no starry-eyed convert to the myth that computers relieve one of the need to think, believes that one great benefit of computers to academe may be that they stimulate thinking about education. "It is embarrassing that professors, who spend so much time evaluating and criticizing other institutions, devote so little effort to finding ways to improve their own methods of instruction. . . . If technology can help in encouraging such an effort, that is reason enough to welcome its appearance."

—BARBARA J. CULLITON