rations were based on extensive networks of preexisting professional and social contacts. The report indicates that these relationships, as well as continuous rounds of phone calls and "bull sessions" were "particularly crucial for these cooperative projects."

The report, which contains nine case studies, also notes that collaboration often resulted in "changes in the nature of the science"—that is, in topics or methodology. Indeed, it says "the cases are replete with admissions by mature scientists of how their perspectives on their science had changed."

The NSF review provides timely reading for budget-makers. It quotes a university scientist to the effect that the IUCR program "is probably one of the most important things that NSF could do because [our] future is probably the future of the industry." An industry scientist lauds one project as "absolutely necessary" but difficult for industry to fund alone. "This is precisely where the Federal Government funding agencies should contribute," he says.—**Constance Holden**

## Press Calls for End of Special Lobbying

National Academy of Sciences president Frank Press has called upon all Academy members to join forces in an effort to combat a growing trend for universities to gain funds through pork barrel politics. During the past 2 years or so, a handful of universities have received special funds for buildings or laboratories by enlisting the aid of Washington lobbyists who, in turn, have successfully pressed the universities' case in Congress (*Science*, 31 August 1984, p. 910).

In a letter to Academy members, Press warns that if the pork barrel approach continues, "the possibility of undermining the evaluation and review system that has been responsible for the great strength of American science will become a reality. . . . It is in the long-term interest of a strong American science to use procedures that we all respect, and to resist special-interest political favoritism that can only hurt the overall scientific endeavor," he wrote.

—**Barbara J. Culliton**

## New Curriculum at Harvard Medical School

An experimental medical curriculum, intended to enhance teaching of the "caring" aspects of medicine, will be initiated next fall at Harvard when 25 of 165 new students become part of the Oliver Wendell Holmes Society. Each year thereafter, an increasing number of entering medical students will be enrolled in the Holmes Society, named in honor of one of Harvard's most distinguished 19th century deans. Planning for the new curriculum began in May of 1983.

The innovative Holmes curriculum will emphasize teaching the "concepts which underlie each discipline and specialty, rather than acquisition of all the known facts," according to a Harvard announcement. In addition, Harvard promises that in the new program, "The large, necessarily more passive lecture will be de-emphasized in favor of small group discussions, case studies, self-paced learning, and training in the observational, analytical and quantitative skills." Computers, provided through a 5-year, $5-million grant from Hewlett-Packard, are also to be part of the "new pathway" approach to medical education, offering a means for students to learn from simulations of biological and diagnostic processes, for example, as well as a way of teaching them to recognize visual patterns of normal and abnormal cells.

An early exposure to patient care is cited by Harvard as another innovative step in building on a student's sense of caring for the sick. "Patient care experiences will form an integral part of the Holmes Society curriculum from the very first weeks," the announcement says.

The experimental curriculum follows in close measure the prescription for educating "humane" physicians that was written recently by the Association of American Medical Colleges in a study called "Physicians for the Twenty-First Century" (*Science*, 26 October, p. 419). Harvard Medical School dean Daniel C. Tosteson was a member of the panel that prepared that report. He calls the Holmes experiment "a major transformation of how we teach and the way students learn."—**Barbara J. Culliton**

## Monsanto May Bypass NIH in Microbe Test

The Monsanto Company is planning to ask the Environmental Protection Agency (EPA) for clearance to conduct a field test of genetically engineered microbes on corn plants, bypassing the traditional approval process by the National Institutes of Health (NIH). Monsanto expects to submit its request late this month. The company is breaking new ground with the planned experiment in terms of federal regulatory process and genetic engineering.

Companies traditionally have sought approval by an NIH advisory committee before proceeding with such field tests, although only federally funded institutions are required to do so. But the NIH approval process concerning deliberate release experiments has become mired in a lawsuit brought by Jeremy Rifkin. Monsanto has now chosen to go directly to EPA, which under federal law oversees the use of pesticides, including microbial pesticides. At a press conference on 10 December, Monsanto did not explicitly rule out applying for approval from NIH, but an official said that the company would follow the wishes of EPA. EPA has been developing its own regulatory guidelines concerning biotechnology products.

The company plans to test a microbial pesticide that will protect the roots of corn plants against black cutworm. The organism represents the first application to EPA to conduct a test in the environment of a genetically modified microbe. At the press conference, company officials for the first time described the organism and the experiment in detail, although bits and pieces of information about the work have been circulating since August. Company scientists have isolated the gene of *Bacillus thuringiensis* that causes bacteria to produce a toxin lethal to cutworm. The gene has been inserted into *Pseudomonas fluorescens*, a microbe that commonly lives on the roots of corn plants. When the cutworm attacks the roots, it ingests the bacteria and dies.

The EPA has 90 days in which to approve or disapprove the experimental proposal by Monsanto after it is submitted.—**Marjorie Sun**