plants' will comply with the overall limit.

Many critics, including some in the environmental movement, say these requirements are awkward or unworkable in practice. A recent report by the National Research Council says the states have been applying the preconstruction monitoring rules too rigidly, and that the 35 percent limit should be regarded only as a benchmark, not an absolute ceiling. But a majority of the air quality commission recommended dropping the limit, and sharply reducing the amount of land that might be included under the most stringent controls. Pollution levels even without these limits will not worsen over the next 10 years and possibly beyond, the commission claims. Ayres disagrees, arguing that the requirement for up-to-date pollution control equipment is by itself inadequate "to keep clean air clean." Except for parks and wilderness areas, he says, clean air regions in 90 percent of the country "could be dirtied to levels no better than many of our major cities."

Additional controversy may be generated by the report's recommendation that Congress set a timetable for the regulation of particularly hazardous pollutants, a recommendation that industry opposes and environmentalists favor. To date, EPA has set emission standards for only three such pollutants, though it has listed about 40 more as potentially hazardous. The commission concluded that EPA has been reluctant to set such standards largely because the costs of compliance are so high. Although EPA has ignored some previous congressional deadlines, the commission believes it may be worth trying again.

In two victories for environmentalists, the commission recommended that air quality goals continue to be set without regard to the economic costs of compliance, and that Congress order a significant reduction in emissions of sulfur dioxide by 1990. The Business Roundtable and other industrial groups had suggested that costs and benefits be compared in a determination of the air quality targets, and also that additional study be made of the impact of acid rain before additional regulation of sulfur dioxide is required.

Much of the debate will center on the wisdom of transferring additional authority to the states under the Clean Air Act. Business groups will argue that state and local agencies are better equipped to judge local enthusiasm for varying degrees of air pollution control. Environmentalists will argue that the states have done a poor job of enforcing the law since 1977, have rarely required the most stringent or up-to-date pollution controls, and have virtually ignored the impact of pollution on agriculture, wildlife, and building deterioration.

Senator Stafford tentatively plans to take his committee on the road for hearings in Maine on acid rain, in Colorado or Wyoming on synthetic fuels, in Detroit on automobiles, in Pittsburgh on the steel industry, and in California for an investigation of requirements that new air pollution in dirty areas be more than offset by reductions in existing emission sources.—R. JEFFREY SMITH

Science Education Axed

The Reagan Administration wants to wipe out virtually all the science education activities of the National Science Foundation (NSF). If the President has his way, the budget of the NSF's education directorate will drop from a fiscal 1981 figure of $81 million to $10 million, which has already been committed to graduate fellowships. Gone would be support for more than 20 programs, including training for secondary school science teachers, upgrading of scientific equipment and curriculum development, science education research, and public understanding of science.

According to Yale physics professor D. Allan Bromley, the cutback is particularly unfortunate for secondary schools. Precollege training in science in the United States already falls far behind that in most developed countries—measured by the number of courses offered as well as by the quality of teachers, the best of whom are dropping out at a rapid rate in order to take more lucrative jobs in industry.

Bill G. Aldridge, director of the National Science Teachers Association, recently warned that secondary school science and engineering has fallen into a "dark ages." "By 1990," he wrote, "secondary science education in the United States will be insignificant and lacking substance unless there is a substantial intervention now at state, local, and, particularly, national levels. There will be few qualified science teachers left and essentially none being trained."

There are also exceptionally grim noises coming from the engineering community. In testimony before the House science and technology subcommittee on NSF authorization, Daniel C. Drucker of the University of Illinois described the "severe and increasing shortage of engineering faculty, facilities and instructional equipment." He said that not only the quantity but the quality of engineering instructors is going down, as the most capable are being lured into industry.

According to Reagan's 18 February budget document, the aim for NSF is to "preserve the agency's focus on its support of research in the natural sciences and engineering"—a statement which ignores the fact that the agency's original mandate called for strengthening of science education as well as research.

The budget-slashing decisions were made at the Office of Management and Budget without benefit of advice from the National Science Board or NSF director John Slaughter, and there is little doubt that one magnet for the ax is the still-remembered 1975 controversy over MACOS (Man: A Course of Study), NSF's best-known piece of curriculum development. MACOS drew the wrath of Moral Majority types (as they would now be identified) for allegedly peddling moral relativism because it contained descriptions of Eskimo life that included such family practices as infanticide and wife-swapping.

Observers find it not only ironic but downright puzzling that the Reagan people are striking out at programs to fertilize budding scientific and engineering talent at the same time they are calling for revitalization of the country's industrial and military establishments. As many have pointed out, the Soviet Union, China, and Japan put tremendous emphasis on giving secondary school students a solid grounding in science and math because they know they cannot run a technological society without a good supply of technologically sophisticated manpower. The Reagan Administration has yet to make the connection.—CONSTANCE HOLDEN

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