Air Pollution: Federal Standards Likely unless States and Localities Take Early Action

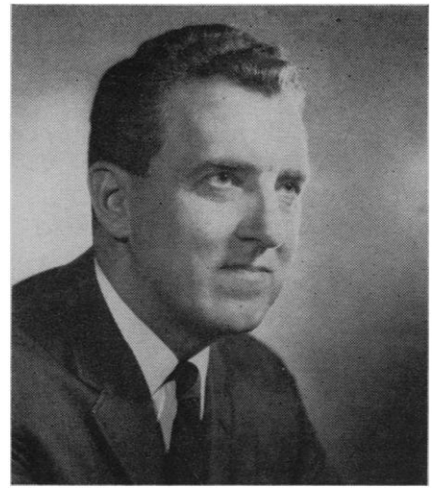
In 1955 Congress made a cautious start at supporting air pollution control. Two years ago it began to move more boldly, and now, newly adopted legislation concerning standards for vehicle-exhaust emission (see box) gives the government control over a major source of pollution.

The question now is whether the states and localities will move quickly to control other pollution sources and thus make stronger federal action unnecessary. Unless the states improve upon their past record, still largely inadequate despite progress in some states, Washington may before the end of the decade, begin prescribing stringent air-quality standards for the entire nation.

Although late in starting, the federal program for air pollution control has evolved more quickly than the program for water quality control. In neither field did Congress take action until after World War II. After long urging by conservation groups, Congress in 1948 made a small beginning on the water pollution problem. It authorized loans and grants to encourage states and localities to undertake studies of water pollution and to build waste treatment works, a modest program which was to be greatly enlarged in 1956, in 1961, and again this year. Although the "killer" smog incidents* of the later 1940's and early 1950's gave dramatic warning, Congress took no action until 1955 to counter the air pollution threat; and then it authorized only a small program of study and research.

Authority for the federal government to initiate abatement proceedings, and, if necessary, bring polluters of water and air into court has been gradually strengthened. To bring an interstate suit under the Water Pollution Control Act of 1948, the government would have needed the consent of the state in which the offensive discharge occurred; the 1956 act made it possible for the government to sue if the consent of a state affected by the polluted waters were obtained. Water pollution legislation passed in 1961 dropped the requirement that, to call a conference

*Eighteen persons died in Donora, Pennsylvania, during the 5-day smog of October 1948; the usual number of deaths for the period was 2. Deaths during the London smog of 1952 reportedly exceeded the normal deaths for the period by 4000. During the New York City smog of 1953 deaths exceeded the normal number by 200.



Senator Edmund S. Muskie

on abatement of interstate pollution or ultimately to bring suit, the Secretary of Health, Education, and Welfare had to act at a state's request. Such a request was needed, however, to act in intrastate situations.

No such tortuous evolution occurred in the case of legislation on air pollution. The Clean Air Act of 1963, the first to provide for abatement action, gave the Secretary of HEW authority to initiate conference and court proceedings in cases where pollutants cross a state boundary; for him to act in an intrastate situation, a state request is necessary, just as in the case of water pollution. The Secretary recently has been given power to prescribe water-quality standards (*Science*, 8 October 1965) for interstate streams and to enforce them against all actual or potential violators, even if pollutants are not affecting a state down river. The standards will be subject to review by a hearing board and by the trial court, but nevertheless will represent a major extension of federal authority. The parallel step, if it must be taken, would be for Congress to give the Secretary authority to prescribe enforceable quality standards for ambient air. Industries, municipalities, and other sources of air contaminants would have to observe strict performance criteria, which, to the extent technology permitted, would ban pollutants.

To mount so ambitious a federal control program now is beyond HEW's present capabilities. In fact, for the next several years HEW will be busy indeed if it acts vigorously in those interstate situations where it already has authority to intervene. Moreover, HEW lacks the political support it needs to undertake a program of setting up and enforcing federal air-quality standards —a program sure to be resisted by industry and by state pollution-control agencies unwilling to see an expansion of the government's control authority.

Senator Edmund S. Muskie (D–Maine), chairman of the Special Subcommittee on Air and Water Pollution of the Senate Public Works Committee, which has played a key role in developing antipollution programs, hopes that the states and localities will make increasing use of the grants and technical assistance available under the Clean Air Act to build strong prevention and abatement programs of their own. In most places, an effective air monitoring system is yet to be established, and such a system is an essential first step toward fixing air-quality standards.

In a recent interview with *Science*, Senator Muskie observed, however, that the public, since the mid-1950's, when it really became aware of air pollution, has shown greater sensitivity to that problem than it has to water pollution. "This public interest will come to bear, certainly on the local government, and increasingly on the state governments," he stated. Muskie said the evolution of ever stronger federal laws for controlling water pollution is an example that will not be lost on those states which hope a similar evolution of air pollution laws can be avoided. "Of course, if the states don't act, then we will have to," the senator said. The question is what is the extent of the probationary period. Most state legislatures have held only one general session since the 1963 act. They will meet again in 1967. Meanwhile, there will be elections next year. This should give us a pretty good reading."

Failure of the states to develop effective programs despite the growing threat of pollution would put the public and the Congress in an impatient mood likely to produce stringent federal legislation, Muskie believes. He suggested that the same thing could happen in pollution that happened in health when the failure of many states to effectively use the Kerr-Mills Act of 1960 to provide better medical assistance to the elderly encouraged Congress to pass the federal Medicare bill this year. The establishment of air-quality controls is costly, complex, and difficult, and one may wonder how many states and localities will meet the challenge.

In the past 2 years, 53 legislative proposals for general air pollution con-

trol have been presented before 27 state legislatures; 12 such laws, varying in efficacy, were enacted. For fiscal 1965, HEW made grants totaling $4,180,000 to 95 state and local control agencies; this increased by 40 percent the funds available to those agencies, a figure which suggests the low level of their previous efforts. (California, and especially Los Angeles, has had an ambitious program, however; in 1961, for example, more was spent in California for air pollution control than was spent by the rest of the states and localities combined.) Muskie believes that an easy but important step in stopping pollution is for federal, state, and local governments to grant tax incentives to encourage industry to install control devices.

Clean Air: 1963 Act Strengthened

The Clean Air Act of 1963 identified the motor vehicle as a major polluter and directed that Congress be kept advised of progress toward eliminating pollution from this source. The technology to reduce exhaust pollutants substantially now is at hand. Accordingly, Congress passed legislation on 1 October directing the Secretary of Health, Education, and Welfare to prescribe emission standards for new (but not for used) vehicles. No deadline was fixed, but HEW intends to apply standards to 1968-model automobiles. The Secretary must give "appropriate consideration to technological feasibility and economic cost"; this will permit him to wait for further advances in the technology of exhaust control before prescribing standards for diesel-powered vehicles.

Potential Polluters to be Advised

The Cleain Air Act also has been strengthened by an amendment permitting the Secretary of HEW to call conferences on potential air-pollution problems. His recommendations will be advisory only, but if they are ignored and pollution occurs, the offending parties will be in a weaker position whenever abatement proceedings get under way. This new power to investigate and warn of specific pollution threats adds a new dimension to the Secretary's authority; the 1963 act permitted him to publish advisory "criteria" as to the effects of pollutants on air quality. His authority to initiate conferences on abatement and the court suits which ultimately may be necessary remains limited largely to cases where pollutants discharged in one state do harm in another. In cases which concern a single state, the Secretary still must await a request from the state before acting. The 1965 legislation does give him authority to initiate proceedings to stop pollution that is giving offense to a neighboring country, if the United States is assured of reciprocal rights.

Solid-Waste-Disposal Program

Congress also has provided for a new research and development program on solid waste disposal, and has authorized the spending of up to $82.5 million during the next 4 years to carry it out. Municipal incinerators often give off pollutants, thus improved practices for the disposal of solid wastes contribute to efforts to control air quality. Also, such practices ease the increasingly difficult problem of finding sufficient space in urban areas for sanitary landfills. Authorized under the new program are grants to (or contracts with) public and private agencies, institutions, and individuals for research, training projects, surveys, and demonstrations. The grants and contracts may cover the construction of new facilities as well as other costs.

HEW will administer the program except for the part that deals with problems of solid waste resulting from the extraction, processing, or utilization of minerals or fossil fuels. Those aspects of the program will be the responsibility of the Interior Department. Nearly 40 percent of the funds authorized is earmarked for Interior, but the money actually available to Interior and to HEW will depend on annual congressional appropriations.

The U.S. Public Health Service as well as the states may be on trial during the years just ahead. PHS administers the Clean Air Act for the Secretary of HEW. Too little time has elapsed since the act was signed into law, on 17 December 1963, to permit an evaluation of PHS's performance. Criticism based on an alleged lack of vigor in administering the laws for water pollution control has led to PHS's losing this responsibility to a new agency within HEW, the Water Pollution Control Administration (WPCA). Some members of Congress have thought that it may eventually be desirable to take responsibility for administering the laws for air pollution control away from PHS, perhaps entrusting their administration to WPCA.

The complaint has been that, as an agency often engaged in cooperative endeavors with the states and oriented primarily toward health problems, PHS has shown neither the toughness nor the dedication necessary to get polluters to give up their offensive habits. The PHS record is not a blank, however. Thirty-seven conferences on the abatement of water pollution have been called since 1956, but this number is not great in relation to the number of badly polluted rivers. Thirty-four of these conferences dealt with interstate pollution, and, of these, 12 were held at state request. The only federal suit on abatement was one brought against St. Joseph, Missouri, after conferences and hearings failed to bring the desired results. Since passage of the Clean Air Act two conferences on abatement have been called, both at the request of state authorities. The first will be held on 9 November to consider a complaint by Selbyville, Delaware, against a chicken processing firm in Maryland. The second, on 30 November, will take up a complaint by Shoreham, Vermont, against a paper mill at Ticonderoga, New York.

Although some members of Congress despair at the reluctance of states to take on difficult new jobs, the authority now being given the Secretary of HEW to prescribe federal standards for motor-vehicle emissions is not a sign of congressional impatience. On the contrary, it reflects a recognition by Congress that control over this source of air pollution is peculiarly a federal problem. The automobile industry, though not eager to see federal standards prescribed, was still less eager to have to cope with a multiplicity of state

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standards. California led the way in prescribing such standards, and other states were beginning to follow suit.

The journey through Congress of this year's Clean Air Act Amendments bill (which included the vehicle-emission standards) was relatively easy, even though some members objected to the provisions for research on disposal of solid wastes as an ill-advised federal venture into the garbage business. Success was assured (it may never have been much in doubt) after the straightening out of a mix-up which caused the Administration some embarrassment. This concerned its position on fixing standards for exhaust emission. HEW had appeared to support strongly the Muskie subcommittee's recommendations for standards; but then James M. Quigley, an assistant secretary of HEW, testified in April that the emission control methods to be used by the automobile manufacturers to meet California's requirements should be evaluated before being applied nationally. This surprising testimony produced headlines such as "LBJ Scuttles Smog-Control Bill," and some observers were quick to suggest that President Johnson, the master of consensus, was snuggling up to the car manufacturers for political purposes. The turn-about defied logical explanation, and the Administration was soon back to an endorsement of the Muskie proposals.

In time, Congress may have to return again to the problem of automobile exhaust emissions. V. G. MacKenzie, the assistant surgeon general in charge of PHS's air pollution division, indicated recently that the application of controls on carbon monoxide and hydrocarbon emission to automobile engines of the kind now in use is no better than a holding action. By 1980 the number of automobiles will have so increased that, without controls, pollution from exhaust emissions will have grown worse. Moreover, for certain emissions, such as oxides of nitrogen, no technical means of control are yet available, MacKenzie said.

PHS is continuing its research on the control of pollutants resulting from fuel combustion. Meanwhile, MacKenzie and others already wonder whether the ultimate solution may not be to abandon the spark ignition engine and develop a radically different automobile propulsion system. Greater use of mass transit would help, too.

Automobile exhaust emissions are, of course, only one source of air contamination in the rapidly growing urban areas. Sulfur oxides, principally from the burning of coal and fuel oil, also are major pollutants, and there are others. The mounting public concern over air pollution is easily understandable. Not everyone goes down to the river, to be repelled by the water's burden of indigestible wastes. But inhabitants of the increasingly numerous cities afflicted by smog become quickly offended. Poor visibility, smarting eyes, and the nagging thought that continuous exposure to contaminated air may bring on a chronic illness make ready converts to the antipollution cause.

Through the Clean Air Act of 1963 and this year's amendments, Congress has tried to give the federal government a meaningful role while, at the same time, holding to the philosophy that air pollution control is primarily a state and local responsibility. Eventual stringent controls seem assured, whether imposed by the states and localities or by a Congress grown impatient at a laggard performance in the statehouses and city halls.—LUTHER J. CARTER

Announcements

The Division of Mathematics of the National Academy of Sciences–National Research Council has established the **Committee on Support of Research in the Mathematical Sciences**. The committee's duties include preparing studies of current research in mathematical sciences and of mathematics education at the undergraduate, graduate, and postdoctoral levels; of current levels and forms of support of mathematical research by federal and private agencies; and an indication of support needed in the immediate future to maintain the present state of mathematical activity.

Lipman Bers, of Columbia University, is chairman. The other members are:

T. W. Anderson, Columbia University

R. H. Bing, University of Wisconsin

H. W. Bode, Bell Telephone Laboratories

R. P. Dilworth, California Institute of Technology

G. E. Forsythe, Stanford University

Mark Kac, Rockefeller University

C. C. Lin, Massachusetts Institute of Technology

J. W. Tukey, Princeton University

F. J. Weyl, Office of Naval Research