411 (1964); A. D. Kaiser, *ibid.* **4**, 275 (1962).
36. H. F. Lodish and N. D. Zinder, *Science* **152**, 372 (1966).
37. R. L. Erikson and R. M. Franklin, *Bacteriol. Rev.* **30**, 267 (1966).
38. B. Francke and P. H. Hofschneider, *Proc. Nat. Acad. Sci. U.S.* **56**, 1883 (1966).
39. R. M. Franklin, *ibid.* **55**, 1504 (1966).
40. N. Granboulan and R. M. Franklin, *J. Mol. Biol.* **22**, 173 (1966).
41. N. K. Sinha, R. K. Fujimura, P. Kaesberg, *ibid.* **11**, 84 (1965).
42. N. Pace and S. Spiegelman, *Proc. Nat. Acad. Sci. U.S.*, in press.
43. I. Haruna, K. Nozu, Y. Ohtaka, S. Spiegelman, *Proc. Nat. Acad. Sci. U.S.* **50**, 905 (1963).
44. S. Spiegelman, 51st Annual Meeting Fed. of Amer. Soc. Exp. Biol., Chicago, April 1967, Symp. Nucleic acid metabolism and biological function.
45. D. T. Denhardt and R. L. Sinsheimer, *J. Mol. Biol.* **12**, 647, 663 (1965).
46. P. H. Pouwels, H. S. Jansz, J. van Rotterdam, J. A. Cohen, *Biochim. Biophys. Acta* **119**, 289 (1966).
47. H. S. Jansz and P. H. Pouwels, *Biochem. Biophys. Res. Commun.* **18**, 589 (1965).
48. A. K. Kleinschmidt, A. Burton, R. L. Sinsheimer, *Science* **142**, 96 (1963).
49. B. Chandler, M. Hayashi, M. N. Hayashi, S. Spiegelman, *ibid.* **143**, 47 (1964); A. Burton and R. L. Sinsheimer, *ibid.* **142**, 962 (1963).
50. G. D. Guthrie and R. L. Sinsheimer, *J. Mol. Biol.* **2**, 297 (1960); R. L. Sinsheimer, B. Starman, C. Nagler, S. Guthrie, *ibid.* **4**, 142 (1962).
51. H. S. Jansz, P. H. Pouwels, J. van Rotterdam, *Biochim. Biophys. Acta* **76**, 655 (1963).
52. R. P. Boyce and P. Howard-Flanders, *Proc. Nat. Acad. Sci. U.S.* **51**, 293 (1964); R. B. Setlow and W. L. Carrier, *ibid.* **51**, 226 (1964).
53. W. Fiers and R. L. Sinsheimer, *J. Mol. Biol.* **5**, 424 (1962); R. L. Sinsheimer, *ibid.* **1**, 37 (1959).
54. M. Hayashi, M. N. Hayashi, S. Spiegelman, *Proc. Nat. Acad. Sci. U.S.* **51**, 351 (1964).
55. J. A. Cohen, unpublished results.
56. J. Vinograd and L. Lebowitz, *J. Gen. Physiol.* **49**, 103 (1966).
57. T. F. Roth and M. Hayashi, *Science* **154**, 658 (1966).
58. Electron micrographs by Dr. E. F. J. van Bruggen with technical assistance of Carol M. Runner, Laboratory of Structural Chemistry, University of Groningen.
59. V. Bode and A. D. Kaiser, *J. Mol. Biol.* **14**, 399 (1965).
60. E. T. Young and R. L. Sinsheimer, *ibid.* **10**, 562 (1965).
61. H. Ogawa and J.-I. Tomizawa, *ibid.* **23**, 265 (1967).
62. A. Becker, M. Gefter, J. Hurwitz, *Fed. Proc.* **26**, 395 (1967); Abstract of the 51st Annual Meeting, Chicago, Illinois, April 16–21, 1967; J. Hurwitz, M. L. Gefter, A. J. Becker, Ann. Res. Conf., Gatlinburg, Tennessee, April 1967.
63. B. Weiss, T. R. Live, C. C. Richardson, *Fed. Proc.* **26**, 395 (1967).
64. F. R. Frankel, *J. Mol. Biol.* **18**, 109 (1966); *ibid.*, p. 127; A. W. Kozinski and P. B. Kozinski, *Proc. Nat. Acad. Sci. U.S.* **54**, 684 (1965).
65. A. W. Kozinski, P. B. Kozinski, R. James, *Virology*, in press.
66. C. A. Thomas, Jr., *Progr. Nucleic Acid Res.* **5**, 315 (1966).
67. J.-I. Tomizawa, Ann. Res. Conf., Gatlinburg, Tennessee, April 1967.
68. L. A. Salzman and A. Weissbach, *J. Mol. Biol.* **28**, 53 (1967).
69. D. J. McCorquodale and Y. T. Lanni, *J. Mol. Biol.* **10**, 10 (1964); Y. T. Lanni, D. J. McCorquodale, C. M. Wilson, *ibid.*, p. 19.
70. I thank Dr. F. Berends, Prof. H. S. Jansz, Dr. R. A. Oosterbaan, Prof. A. Rörsch, and Dr. A. de Waard for stimulating discussions and criticisms; and Miss Frieda Leenart for preparation of the manuscript.

NEWS AND COMMENT

Water and Air Pollution: Two Reports on Cleanup Efforts

1. The Battle of Lake Erie: Eutrophication and Political Fragmentation

Cleveland. As any nose can detect on a warm day, Lake Erie, the oldest and shallowest of the Great Lakes, is an ailing body of water. Its affliction, known as eutrophication, is a natural disease of aging lakes. But, in the case of Lake Erie, the inevitable is being accelerated by a daily overdose of some 150,000 pounds of phosphates, which, ironically, are a by-product of man's penchant for cleanliness. Since most of the phosphates have been traced to expended detergents, it might seem that the problem could be alleviated in one way or another. But, as has been demonstrated on innumerable occasions, the technology of pollution control cannot be considered apart from the economics and politics of pollution.

Eutrophication is characterized by changing biota, and particularly by dense algal blooms that deplete oxygen from the bottom layers of lake water when the algae decay, foul beaches when they wash ashore, and sometimes cause odor and discoloration of drinking water (*Science*, 13 Oct., p. 278).

Statistics compiled by the Federal Water Pollution Control Administration's (FWPCA) Great Lakes Program in Cleveland indicate that 80 percent of the phosphates entering Lake Erie are first treated by municipal sewer plants. Of those phosphates, 66 percent originate in detergents. The FWPCA takes the position that the eutrophication problem in Erie can be alleviated by removing phosphates from detergents and from treated sewage effluents.

Because no one favors pollution, the soap and detergent industry, which grosses $2 billion annually, has been left in the position of having to favor eutrophication control measures while quietly pointing out that it is not solely to blame. The industry is especially sensitive since just 2 years ago it completed a $150-million changeover to the manufacture of biodegradable detergents. It did this after having been singled out as responsible for turning numerous rivers, lakes, and water supplies into giant bubble baths.

Charles G. Bueltman, technical director of the Soap and Detergent Association, said during an interview with *Science* that the industry is now being cited as the major cause of eutrophication because the government knows the industry will cooperate to find a solution. The industry has already proved its public-spiritedness by voluntarily seeking and finding a substitute for the suds situation, Bueltman says. Critics of the detergent industry assert that the industry came up with a remedy only because legislation was being threatened which would have forced it to do so anyway. Bueltman denies this, saying the industry started a program in 1951 to find a substitute for the surface active agent that was causing the problem. In 1963 it announced that a substitute substance had been found and that an industry-wide changeover would be made. According to Bueltman, most of the legislation threats were not made until after the switch had been announced.

The industry asserts that most of the new burst of finger-pointing in its direction did not begin until 1965, the year of the first Lake Erie Enforcement Conference. Bueltman says that

NEWS IN BRIEF

• **SEXUALITY STUDY**: A task force has been named by the National Institute of Mental Health (NIMH) to develop a research program on human sexuality, with emphasis on homosexuality. The group, which includes psychiatrists, sociologists, clergymen, lawyers, psychologists, and anthropologists, "will examine current laws and practices through which society deals with the homosexual and examine the effects of such policies on the individual." Stanley F. Yolles, director of NIMH, stated that conservative estimates place the number of adult men who are exclusively homosexual at 4 percent. He noted that although homosexuality is widely regarded as a social problem of considerable magnitude, it has been somewhat neglected by scientists, "partially due to the stigma which attaches to work in the field." UCLA research psychologist Evelyn Hooker will be chairman of the group. Members of the task force are: Judge David L. Bazelon, U.S. Court of Appeals, D.C. Circuit; Jerome D. Frank, Johns Hopkins University School of Medicine; Paul Gebhard, Indiana University; Seward Hiltner, Princeton Theological Seminary; Robert Katz, Hebrew Union College; Judd Marmor, Cedars-Sinai Medical Center; John Money, Johns Hopkins University; Morris Ploscowe, New York University School of Law; Henry W. Riecken, Social Science Research Council, Washington, D.C.; Edwin M. Schur, Tufts University; and Stanton Wheeler, Russell Sage Foundation.

• **ENVIRONMENTAL DEFENSE FUND**: A fund to support court cases involving conservation problems has been proposed. According to a statement issued by the scientists forming the fund, "The Fund would act whenever serious, permanent, and irreparable damage was threatening the nation's natural resources." Although it is currently without assets, a spokesman said it is hoped that various foundations will make funds available. A group of five scientists will serve as the nucleus of a scientific advisory committee for the fund. The committee will decide which cases are worthy of support and attempt to find appropriate witnesses to testify in cases. Committee members are: George M. Woodwell, Brookhaven National Laboratory; F. Herbert Bormann, Yale University; Charles F. Wurster, State University of New York, Stony Brook; Robert H. Whitaker, University of California, Irvine; and Anthony S. Taormina, regional supervisor of fish and game, New York State Conservation Department.

• **HEALTH FACILITIES STUDY**: A 15-member advisory commission has been named by President Johnson to look into the nation's long-range needs for health facilities. In a statement the President said, "We cannot look at hospital facilities alone. They must be examined in relation to community and regional health needs and resources." The commission's report is expected in about 1 year. Named as chairman was Boisfeuillet Jones, formerly special assistant to the secretary of Health, Education, and Welfare for medical affairs. Jones is now president of the Emily and Ernest Woodruff Foundation.

• **NEUROSCIENCE TRANSLATIONS**: The first issue of a quarterly journal specializing in translations of current Russian literature on the experimental neural sciences is scheduled for publication in November. The journal, *Neuroscience Translations*, will be published by the Federation of American Societies for Experimental Biology (FASEB), under a $50,000, 1-year grant from the National Institute of Mental Health. A total of about 80 articles will be published during the year. The first issue will be mailed free of charge to subscribers to the *Journal of Neurophysiology* and the *Journal of Comparative and Physiological Psychology*. A year's subscription to the journal may be obtained without charge by writing to: Raymund L. Zwemer, executive editor, *Neuroscience Translations*, FASEB, 9650 Rockville Pike, Bethesda, Md. 20014. Robert W. Doty, editor of the journal, stated that the future of the publication will depend upon reader rseponse.

• **COMPTON MEDAL**: Alan T. Waterman, first director of the National Science Foundation, has been awarded the Karl Taylor Compton Gold Medal by the American Institute of Physics "for distinguished statesmanship in science."

the detergent industry began an intramural program of phosphate research in 1958, and that even if a substitute were discovered today it would be 7 to 10 years before an industry changeover could be completed. Just how much the industry is spending on the research is a secret. Bueltman says no figures are released because they would appear miniscule beside the industry's annual expenditure on advertising. He adds, however, that about 150 people are now working on research for the industry, and that as much money is being spent as can be effectively used.

Bueltman admits the industry has been approached by government agencies regarding federal support for its research, in an attempt to speed solution of the problem. He says his reply has been, "You do not legislate an invention."

Because phosphates have many advantages, they have proved difficult to replace. In detergents, sodium tripolyphosphate acts to soften water; sequester objectionable elements such as iron, thus preventing rust; disperse and suspend dirt; emulsify grease; and buffer alkalinity. When sodium tripolyphosphate is combined with surfactant, the other major ingredient in detergents, the two have a synergic action.

Though the industry has often pointed out that it is not the sole source of phosphates linked with eutrophication, if a substitute product were found, Bueltman says, it probably would be cheaper for the industry to convert to its use than to continue to argue, against public opinion. He notes that the total effects of any phosphate substitute on eutrophication would be unknown, and possibly would be more detrimental than phosphates.

A viable argument for reduction, if not elimination, of phosphates from detergents is the fact that the percentage of phosphates in detergents varies substantially between products designed to perform the same duties, The phosphate content of heavy-duty laundry powders ranges from 35 to 57 percent. That of powders for automatic dishwashers ranges from 25 to 50 percent. Liquid detergents contain the smallest quantities of phosphates; the range is between 15 and 25 percent for heavy-duty cleaners and between 0 and 10 percent for detergents designed for light cleaning.

In Cleveland, where the Cuyahoga River empties into Lake Erie, the problem of pollution is readily apparent.

Masses of algae, characteristic of eutrophic lakes, grow in dark ridge-like formations in the island area of western Lake Erie as shown in this aerial photograph. Populations of blue-green algae reach their peak following spring and autumn turnovers of the water. As the eutrophic process has accelerated in Lake Erie the quantity of algal cells per milliliter of water has more than quadrupled. In 1927 about 1600 algal cells were recorded per milliliter during peak periods of algal bloom. In recent years as many as 7000 cells have been counted. Algal blooms also now last much longer than they did in the past. [FWPCA photographs]

There it is caused not by eutrophication but by the wastes that are commonly associated with biological pollution. Whether eutrophication itself is pollution is a debatable point. George Harlow, who heads the FWPCA's Great Lakes Program, believes it is. He says accelerated eutrophication is caused by man, "and that is pollution."

For Cleveland, as for most of the other cities that lie within the Lake Erie drainage basin, the lake serves not only as a dumping area for sewage but also as the city water supply. It is also valued for providing economic transportation, recreation, esthetic values, and commercial and sports fishing. Transportation suffers little or nothing from eutrophication, but the same cannot be said for the other uses.

The Erie problem is complicated by the sheer size of the lake. Within its drainage area are a Canadian province and five states, only four of which touch the lake's 761-mile shoreline. Only since 1965, when the Department of Health, Education, and Welfare (HEW) called the first Lake Erie Enforcement Conference at the request of Governor James A. Rhodes of Ohio, have the states worked together toward establishing uniform pollution standards. Since that time there have been four Lake Erie Enforcement Conferences, attended by representatives of the five states and observers from Ontario. The FWPCA, which has been transferred from HEW to the Department of the Interior, has acted as sponsor. The conferences have produced a plan designed to curb biological pollution by 1 January 1970. Phosphate removal is one of the objectives of the plan, implementation of which is expected to cost municipalities and industry within the Erie basin $1.2 billion. However, phosphate concentrations are not expected to be substantially reduced as a result of the gigantic expenditure. Similar recommendations have been developed by the United States and Canada under the International Joint Commission, which is concerned with pollution flowing across the international boundary to the injury of health or property on the other side.

Harlow is convinced that a substantial reduction of phosphates in detergents and their removal in waste treatments plants would eventually curb eutrophication in Lake Erie. The "biggest problem in Lake Erie . . . is applying knowledge we already have, not doing more research," Harlow told *Science* during an interview. Although he would like to see the detergent industry come up with a substitute ingredient—possibly a nonsoluble phosphate—he believes sewage-treatment technologists have provided an answer to the problem of removing the bulk of phosphates during the treatment process.

Originally the Lake Erie conferees decided that some 90 percent of the phosphates flowing through treatment plants should be removed, but they considered the task formidable if not impossible, and abandoned it in favor of the edict to "maximize" removal. Neither Detroit nor Cleveland, the two largest cities discharging effluents into Erie, plan to do anything about phosphate removal. Said Walter E. Gerdel, Cleveland's commissioner for water-pollution control, "We don't know how to do it and we don't think anyone else does either."

Somewhat accidentally the FWPCA has come up with a program for phosphate removal. A press release from Interior Secretary Udall's office last year noted that FWPCA scientists and

engineers had discovered the process while reviewing operational data of three similar treatment plants in San Antonio, Texas, one of which achieved substantially greater phosphate removal than the other two did. After studies, the FWPCA devised a program designed to obtain the same results in other treatment plants by increasing aeration, concentrating bacteria, and reducing the time for the settling of solids.

It may be that there are a number of accidental combinations of such factors which would maximize phosphate removal. Gerdel said one of Cleveland's two secondary-treatment facilities removes from 60 to 70 percent of the phosphates in the sewage. The other plant removes only 30 percent. Detroit's general manager of the Department of Water Supply, Gerald Remus, said laboratory tests in Detroit indicate that combining pickling acids from steel mills with waste effluents will do a good job of removing phosphates. But, he noted, it may be that the process works because of Detroit's "particular kind of waste." Gerdel said he believes the answer to the problem should come from the federal government, "because they're in the research and development business."

Harlow believes that, because Erie's 125-trillion gallons of water are turned over once every 3 years, much of the algae problem could be eliminated if the entry of phosphates were substantially reduced. In opposition to his position are some authorities who doubt that the algal growth would diminish even if treatment plants achieved 100-percent removal of phosphates. Of the estimated 150,000 pounds of phosphates that enter Lake Erie daily, only 50,000 pounds are discharged from the lake by way of its outlet, the Niagara River. The rest are retained. According to FWPCA data, sources of phosphates entering Erie are as follows: Lake Huron and rural-land runoff, each 20,000 pounds daily; municipal wastes, 70,000 pounds from detergents, 30,000 pounds from human excreta, and 6000 pounds from urban land runoff; direct industrial discharges, 6000 pounds daily.

While admitting that there is much yet to be learned about eutrophication, Harlow says that the algae problem would cease if the phosphate concentrations in Erie could be reduced to 0.01 milligram per liter. Studies of some lakes have revealed conditions

Accumulations of various types of sediment, including decaying algae, have left sludge banks on the perimeter of Lake Erie. Footprint impressions illustrate the depth of the sludge at Cattaraugus Creek in New York near its mouth on Lake Erie. At times decaying algae accumulate on Erie's beaches to the depth of 3 feet.

that appeared to be right for an extensive algal bloom but none appeared. There have also been reports of blooms when phosphate levels were below those prescribed by Harlow. Despite scattered reports that do not back the FWPCA's diagnosis for Erie, both the phosphate and algal distributions in the lake tend to support the FWPCA's position. In Erie's western basin, where phosphate concentrations are the highest, ranging from 0.05 to 0.15 milligram per liter, the algal blooms are the heaviest. The central basin has lower phosphate concentrations and fewer algae, and the eastern basin, which has the least phosphate, has practically no algae problem

Effects of eutrophication in Erie, have been primarily associated with extensive changes in the fishing industry, with beaches that sometimes have been fouled with from 6 inches to 3 feet of decaying algae, and with odors and discoloration of drinking water. The Fish and Wildlife Service has surveyed the lake extensively in an attempt to analyze the changing fisheries resources. Since the turn of the century, the major commercial species of fish have all but disappeared from the lakes, while catches of medium-quality fish have soared. In addition, the bottom fauna has undergone extensive change. The change in biota has been attributed to decreased amounts of dissolved oxygen in the lower waters—possibly due to decaying algae. However, a report* issued by the Fish and Wildlife Service in July indicates that there may be many other factors involved, including a biochemical oxygen demand by the bottom sediments.

Although the changes in fish population have been observed over more than half a century, in Cleveland the water supply problem was first noticed last summer. To date, FWPCA research on eutrophication has been done at Lake Shawaga in Minnesota, at Klamath Lake in Oregon, and at Lake Sabasticook in Maine. But researchers are still a long way from reaching any unanimous conclusions about accelerated eutrophication. Some of them cite the possibility of substances other than phosphates playing a key role. For example, the potential importance of nitrates has been emphasized by several investigators.

Several bills have been introduced into Congress this session calling for additional research on eutrophication, but even without congressional action the problem is likely to come under much closer scrutiny. A task force made up of FWPCA officials and representatives of the detergent and chemical industries was named recently by Secretary Udall to analyze the role of phosphates in eutrophication and to determine what, if any, steps can be taken to stop the process, and how lakes that have already been affected can be rehabilitated.

While the FWPCA's Great Lakes program has been intent on attempting to eliminate phosphates from detergents, several other phosphate contributors have been largely overlooked. Of the 10 million people on the U.S. side of the Erie drainage basin, about half a million rely on septic systems that are not regulated with regard to use

*"Fish and Wildlife as Related to Water Quality of the Lake Erie Basin," *U.S. Fish Wildlife Serv. Publ.* (1967).

of phosphates. Likewise, there are no controls over disposal of wastes from ships, except for prohibitions on the dumping of oil into the lake. Shipping tonnage has nearly doubled on Erie in the last 10 years. Agricultural chemicals have been ignored because it is thought that agricultural runoff is largely uncontrollable.

Even with the $1.2-billion program that is supposed to clean up Erie's biological pollution, the largest cities on the lake will continue to dump inadequately processed sewage with high phosphate concentrations into the lake during periods of heavy rain. Both Detroit and Cleveland have combined sanitary and storm sewers that carry untreated waste effluents into the lake along with storm runoff. In Cleveland, two of the overflow storm sewers enter the lake at bathing beaches.

At the moment, most of the talk about the eutrophication around Erie appears to be nothing more than a lot of warm air that is being used to sail incriminating charges back and forth across the lake. In view of the funereal pace at which the problem is being studied, Erie may have passed into its death throes before the doctors are even sure of the disease—let alone the cure.—KATHLEEN SPERRY

Air Quality Act of 1967: A Step Forward, But Don't Expect Immediate Improvement of Your Air

"The Air Quality Act of 1967 . . . serves notice that no one has the right to use the atmosphere as a garbage dump, and that there will be no haven for polluters anywhere in the country."—Senate report on the Air Quality Act.

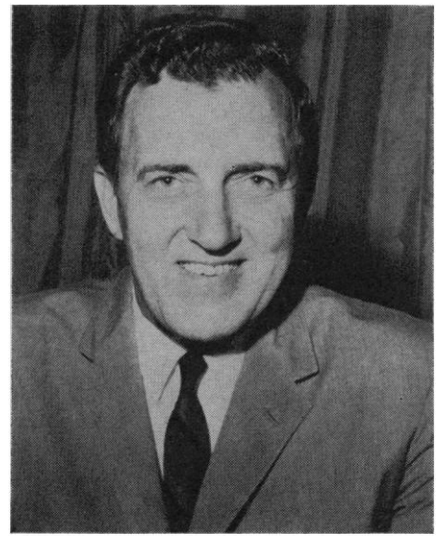
Don't hold your breath, hoping that the polluted air around you will soon turn fresh, even after you read the hard-hitting rhetoric quoted above.

Although many who are concerned about air pollution feel satisfied that Congress is passing a significant piece of control legislation this year, there is also some fear that additional years may pass before widespread enforcement action will be conducted under the provisions of the bill.

As of this writing, the Air Quality Act of 1967 (S. 780) had almost cleared its way through Congress. On 3 October, the bill was reported with little dissent from the House Committee on Interstate and Foreign Commerce; committee members expect House passage at any moment. The bill passed the Senate by an 88–0 tally on 18 July. It is reasonable to expect that the bill will become law before the end of this year.

When the Air Quality Act passed the Senate, Senators engaged in a good deal of self-congratulation for passing a stringent air-pollution abatement measure. This somewhat jubilant mood does not characterize all those concerned with air pollution in Washington. Three blocks below Capitol Hill, a murky pall seems to hang over the air-pollution division of the Public Health Service. PHS officials seem to be bothered by at least two features of the bill as shaped by Congress: first, the Administration's request for the setting of national emission standards for industrial polluters has been eliminated; second, in place of the national standards, the Congress has established complicated provisions for the setting of state standards in air-pollution areas designated by the Secretary of the Department of Health, Education and Welfare (HEW). Testifying before the House Commerce Committee in August, HEW Secretary John W. Gardner said that the bill, as changed by Congress, "could result in a slowdown in control efforts for at least 2 and perhaps more years."

The course of the Air Quality Act this year illustrates a crucial political fact about Congress: the approval of Senator Edward S. Muskie (D–Maine) is almost essential for any legislation on pollution. Muskie does not hold this power because he throws his weight and seniority around. As a matter of fact, he is only completing his 9th year in the Senate and is not yet a committee chairman. He does, however, head the Senate Public Works Subcommittee on Air and Water Pollution, a position which gives him a key institutional role in dealing with this subject in the Senate.



Edmund S. Muskie (D–Maine), chairman of the Subcommittee on Air and Water Pollution of the Senate Public Works Committee.

More important than this subcommittee chairmanship are Muskie's personal characteristics. He is truly concerned about pollution and does his homework on the details of the legislation. He is intelligent, personable, and objective enough so that his colleagues defer to his judgment on this subject. (Muskie is the Senator most frequently mentioned as a possible successor to Majority Leader Mike Mansfield, if Mansfield decides to resign from his leadership post.) It is obvious that no congressman swings the weight that Muskie does on pollution matters. His influence even carries over to the House of Representatives, partly because few Representatives seem to be as concerned about air pollution as Muskie is. This influence on the House can be seen by the fact that the House Commerce Committee did not hold hearings on the Air Quality Act until the Senate had already passed the bill; the committee reported out basically the same bill which the Senate had passed, except for cutting the money for research.

Considering Muskie's well-known influence on pollution legislation, it is surprising that the White House did not confer with him before it sent the Air Quality Act to Congress. Since Muskie had expressed his opposition last December to national emission standards for nonmoving sources, perhaps the White House figured that it was impossible to convince him. But it is reasonable to expect that the White House should have tried, for