

Environmental Pollution

Man has always been faced with the problem of getting rid of his wastes. At one time this was simply solved by moving to a new cave. But as our numbers increased, we spread over more and more of the land; as our technology developed, we had more and different types of wastes to get rid of. The size of the total environment remained constant, but the amount of undesirable material which man throws off into his atmosphere, spreads over or buries on his land, or dumps into his rivers and oceans has increased to the point where his actual existence is seriously threatened by his contamination of the very environment which has so long sustained him.

Our environmental pollution has now reached the point that drastic measures must be undertaken. There is no new cave to move to and, if we continue our present course, we will be trapped. To the growing awareness of the problem has been added a national concern for the future if the present rate of destroying our life-sustaining environment continues. This has resulted of late in many articles in the popular press—articles in some cases designed to scare us into action, but all written to point out the inevitable fate awaiting us unless something is done. The scientists of the United States have become increasingly concerned, and the recent publication of the National Academy of Sciences' report, "Waste Management and Control," focused some of the best minds in the country on this problem. The result of this recent awareness of the magnitude of the problem we are facing is a growing national will to get on with solving the problem so that our earth will continue to be habitable.

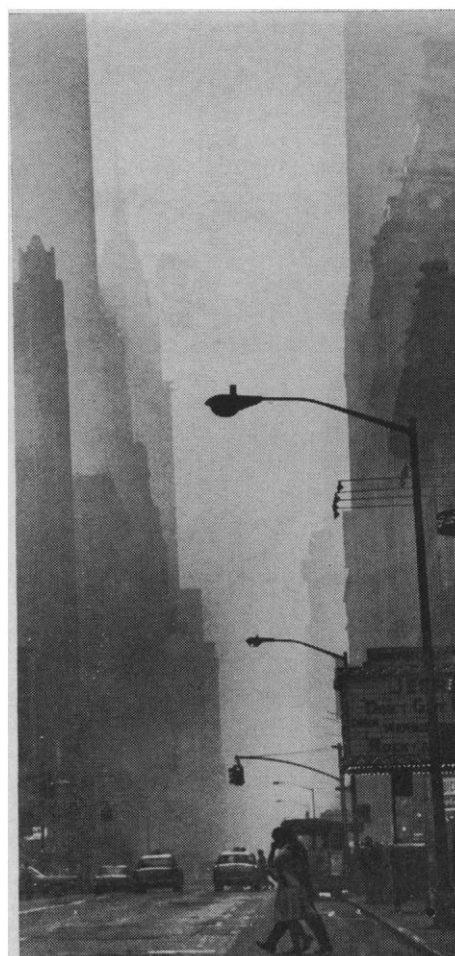
The concern of the scientist for the problem and the knowledge that part of the solution must come from him have resulted in his devoting part of the December meeting of the American Association for the Advancement of Science to discussions of environmental pollution and possibilities of its control. Both Section M (Engineering) and Section O (Agriculture) have scheduled full technical sessions on pollution and its control. The AAAS General Session on the morning of 28 December will be a broad look at the

current problems of environmental pollution and control. Five discussions on environmental pollution will cover the health aspects, future problems in estuaries and coastal marine waters, the atmosphere, nuclear aspects, and the role of industry in environmental pollution.

Norton N. Nelson (Department of Environmental Medicine, New York University Medical Center) will consider the health aspects of environmental pollution. Waste products are considered as pollutants when they become objectionable or harmful to man. So it is man himself, both as the cause and as the recipient, about whom we are most concerned. What is our environmental pollution doing to the human body?

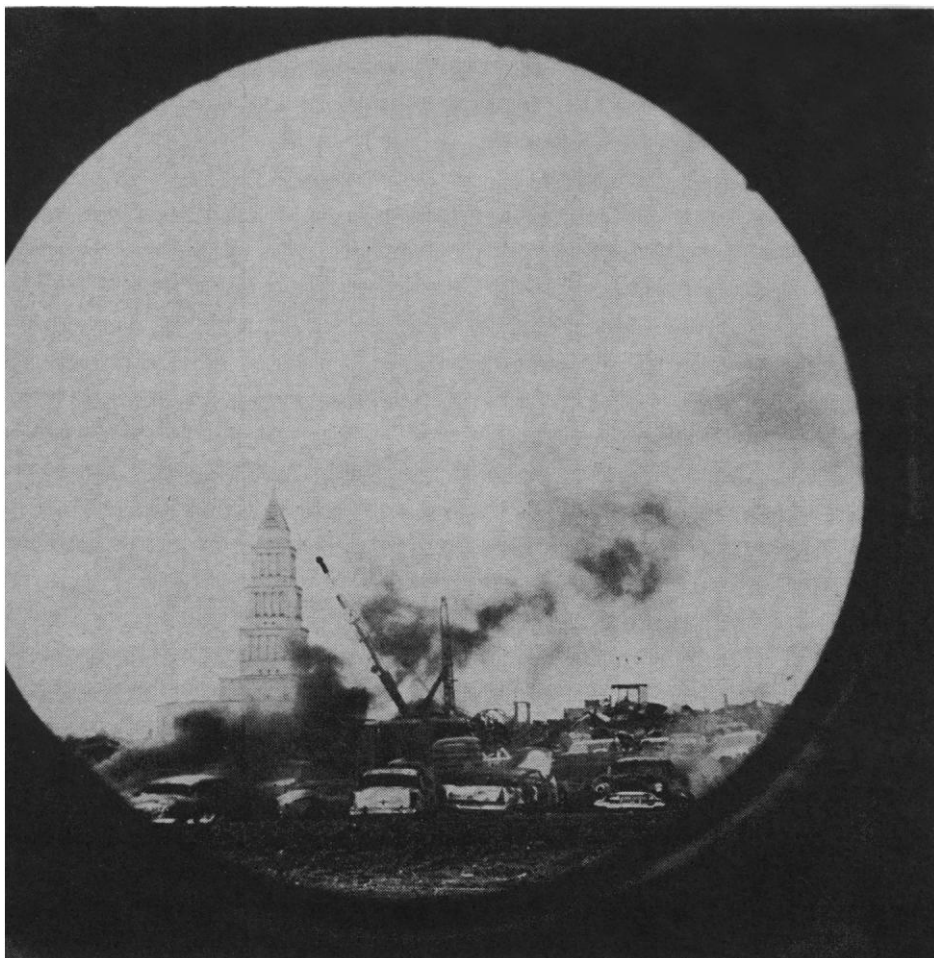
Donald W. Pritchard (Chesapeake Bay Institute of the Johns Hopkins University) has specialized in the basic understanding of estuaries and their physical processes, and he will discuss some of the more critical problems which we will face in the future if our lakes, estuaries, and near-shore waters are considered primarily as waste receptacles without consideration for their other resource potentials. Some 52 million people live within a 50-mile-wide belt along the coasts of the United States. This is only about 8 percent of our total land area but it is occupied by almost 30 percent of our population. At present growth rates, this population can be expected to double in the next 30 years. As our packing of people and industries into this area intensifies, so too will our waste concentration and attendant pollution become even more of a problem. It is in this coastal strip that man is in the most intimate contact with the marine environment. In terms of seafood harvested per unit area, the estuaries are the most productive marine environment used by man, but they are also increasingly used for the non-extractive resources such as transportation, recreation, and waste disposal. Yet these utilizations of the same resource are in mutual conflict. How should this problem be approached for optimum resource utilization?

Vernon G. MacKenzie (Division of Air Pollution, the Public Health Service) will discuss the problems of air



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pollution. Twenty years ago the problem of air pollution was considered to be only scattered local smoke nuisances, and public indignation was focused more on dirty shirts than on dirty lungs. Even as late as the 1950's local control efforts were directed to the limited objective of controlling a nuisance. Today, however, the situation is dramatically different. To the original nuisance value of smoke has been added a host of gaseous and particle pollutants which greatly outstrip the capacity of the atmosphere to disperse them, and the local nuisance has evolved into a ubiquitous threat to our national health and welfare. The effects of air pollution now are extremely serious. Lowest estimates of annual economic losses due to air pollution in the United States are several billions of dollars, and these figures do not include the costs in human health and irritation. While the degree of air pollution rises annually, the amount of



U.S. Public Health Service
Federal Water Pollution Control Administration



available air remains the same. The 1963 Clean Air Act is a step in the right direction, but the fragmentation of political responsibility for air pollution control and the economic impediments to strong controls presently hinder efforts to avoid what could very easily become a major national disaster.

Joseph A. Lieberman (Division of Reactor Development and Technology, U.S. Atomic Energy Commission) will concentrate on the expected growth of nuclear power and the quantities of radioactive material this growth will entail. He will review and examine the environmental aspects of the increasing use of nuclear power for the generation of electricity and discuss what is now being done to control the problems related to the radioactive fission products produced during nuclear plant operation.

Athelstan F. Spilhaus (Institute of Technology, University of Minnesota) has devised a wholly new concept whereby industry instead of concentrating on the products it produces, also considers what is left over or discarded and makes use of this. It is a closing of the loop with reduced pollution as one end result. The traditional job of industry has been the supplying of things to contribute to the "ease" of our living. A polluted environment loaded with the discards of "ease" causes "dis-ease"—sometimes in the physical sense, more than likely contributes to mental disease, but unquestionably to the larger definition of disease as opposed to ease.

American scientists are concerned about environmental pollution—very seriously concerned. They are upset about what they find about them now and what they can predict for the future. They want to and must contribute a major increment to the solution of what has become the major environmental problem facing mankind. Man made the problem, and man can solve it. The symposium at the annual meeting of the American Association for the Advancement of Science on 28 December will be one step toward this solution.

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