

Unanticipated Environmental Hazards

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Nothing has marked recent history more than the increase in man's ability to change aspects of the natural world. These striking achievements in science, however, are a mixed blessing. It is by now commonplace that under the pressure of modern technology and increased population, some of the changes in the environment, if extended, seriously threaten man's continued existence in that environment. In the eager search for the practical benefits of new knowledge, man has often unwittingly introduced major environmental hazards.

The list of environmental misfortunes is long and well known, and includes the "death" of Lake Erie by oxygen starvation, smog over all major cities, noxious substances now lodged in our bodies, such as DDT, strontium-90, lead, mercury, and others. The 1964 report of the AAAS Committee on Science in the Promotion of Human Welfare, "The Integrity of Science," attributed some of these hazards to a tendency to make hasty applications of new technologies without investigation into the long-range effects on nature.

A three-session symposium will be convened to consider additional environmental misadventures and their causes and prevention, on 28 and 29 December 1968, at the AAAS Annual Meeting in Dallas, Texas. The symposium is entitled, "Unanticipated Environmental Hazards Resulting from Technological Intrusions"; it is co-sponsored by the AAAS Committee on Science in the Promotion of Human Welfare and Scientists' Institute for Public Information.

The symposium will call to attention hazards that have developed from chemical interactions in the environment,

including some that are the consequence of precipitous applications of technology and some that might have been prevented by prior open consideration by interdisciplinary groups. The symposium will illustrate that such hazards occur from a wide variety of endeavors and in other countries as well as the United States. The symposium will explore methods to forecast and prevent serious environmental alterations. It also will consider the need to bring relevant technical information to the public in order to prepare the community to deal with the attending social issues.

Among the case histories to be discussed will be:

- The case of the oil tanker *Torrey Canyon* which, for 10 days in March 1967, leaked 117,000 tons of crude oil into the English Channel. A massive poisoning of marine life ensued—not from the oil, but from the detergents that were poured on the oil to disperse it. J. E. Smith (Director of the Plymouth Laboratory of the Marine Biological Association of the United Kingdom) will report on a study of the case he directed.

- The possible geological consequences of the storage of chemical wastes in deep wells near Denver. David Evans (Colorado School of Mines) will discuss the problem.

- Herbicides used in the defoliation program in Vietnam. The potential ecological consequences of this program have been the subject for con-

Cluster of asbestos bodies in ashed lung section of a welder. Construction workers tend to have more asbestos bodies in their lungs than other blue-collar workers (about $\times 1000$). [I. J. Selikoff, Mount Sinai School of Medicine]

siderable discussion and debate among scientists. Two papers will be read on the subject from considerably divergent viewpoints.

- Asbestos pollution. The community health problem attending the rise in asbestos production from 500,000 tons in 1930 to the current annual rate of 4,000,000 tons will be discussed by I. J. Selikoff (Mount Sinai School of Medicine in New York).

The final sessions of the symposium will be devoted to a consideration of the interaction between environmental contaminants and drugs, food and drugs, and among different drugs. An example of such unanticipated hazards is that insecticides can stimulate the liver to produce abnormally high levels of certain enzymes, which in turn may detoxify drugs and render them ineffective at normal dosages. Also, some barbiturates are counteracted by DDT, and some pesticides can cause the production of estrogen. Edward A. Carr (University of Michigan), Albert Sjoerdsma (National Institutes of Health), and Allen H. Conney (Burrington Wellcome Research Laboratory) will discuss the problem.

In addition to the aforementioned participants, Margaret Mead will present introductory and summary remarks; Rene Dubos, Barry Commoner, and Walter Modell will be session chairmen. Modell and the undersigned are symposium arrangers.

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