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Environmental Health Research

Most Americans celebrated Thanksgiving and Christmas of 1959 without cranberries. On 9 November of that year, the Secretary of Health, Education, and Welfare reported traces of the weed-killer aminotriazole in cranberries headed for the commercial market. The substance was known to cause thyroid cancer in rats and its use had been restricted by the Food and Drug Administration. After a 5-month struggle between the cranberry industry and the agency, the contaminated berries were isolated, cranberry sauce was returned to the market, and the government paid the industry $10 million to compensate for its loss in sales.

This episode reflected the difficulties that, 20 years ago, confronted decision-makers charged with resolving complex environmental health questions. Gaps existed in epidemiologic information and methods for correlating patterns of disease with exposure to chemicals. Our understanding of carcinogenesis, our ability to test rapidly for health hazards, and our methods for relating the results of animal tests to humans were inadequate. So, too, were methods for decision-making under conditions of uncertainty and for translating reliable information into terms of enlightened personal and organizational behavior.

Since 1959 we have seen some progress. Better epidemiologic techniques, growing attention to decision analysis, greater concern with behavioral science, and the enlightened involvement of the public—all represent significant steps. Developments in basic biology have provided applied scientists with valuable new insights. For example, the development of the Ames test and other sensitive and rapid testing procedures for suspected carcinogens was followed by the demonstration of a correlation between mutagenicity in bacteria and carcinogenicity. This established the significance for mammalian toxicology of much fundamental DNA research in primitive organisms.

Progress has been limited, however, when considered in the context of how far we are from consensus on such questions as those presented by saccharin and benzene. It has also been limited when compared with developments in the biomedical area. During the third quarter of this century, the National Institutes of Health played a critical role in nurturing that area of science and in developing a generation of research-oriented physicians and basic biomedical scientists. As a result, advances in biological knowledge have been applied to medical problems with a great increase in our understanding of disease.

The environmental health issues now confronting society are perhaps even more complex than those in the biomedical sciences. Laboratory scientists, statisticians, epidemiologists, engineers, economists, decision analysts, behavioral scientists, and others must be recruited. In applying their discipline to the environmental area, they must learn the language and problems of colleagues in other disciplines concerned with related questions. Recruitment efforts may be facilitated by the desire of many of today's gifted young scientists to apply their discipline to important social problems.

If we are to enter the 21st century as well prepared in the environmental health sciences as in the biomedical, some government agency must seize the initiative now. It must support efforts to attract, train, and help fund the work of many able scientists prepared to commit themselves to fundamental and applied environmental health research. The challenge facing universities is also great, for the complexities of interdisciplinary research and training do not respect the traditional barriers that separate departments and faculties. Universities and other research organizations must provide the milieu for environmental health research and recognition for success in such activities.

There is no time to waste. The public is increasingly concerned about the environment and health. The year 2000 is only a few days more distant than the cranberry-less holidays of 1959.—HOWARD H. HIATT, *Dean, Harvard School of Public Health, Cambridge, Massachusetts 02115*