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safely exposed to any levels of DDT and that "DDT has been shown to be carcinogenic."

Epstein has ignored the fact that not a single case of human cancer due to DDT has been proved anywhere in the world in the quarter of a century in which hundreds of millions of humans have been exposed to DDT. Even among employees of a DDT plant, 11 to 19 years of heavy exposure to DDT has caused no demonstrable illness, and definitely no cancers. Let some qualified statistician, balancing this record against a few "crude" and "grossly insensitive" animal experiments, determine the odds that someone, somewhere, sometime, may have a cancer due to DDT.

"Science" is defined as "Knowledge; especially knowledge gained through experience" (1). I am forced to conclude that Epstein's "point of view" is not science. Rather, it is anxiety-produced and -producing propaganda for the Washington lobby of the Environmental Defense Fund. The use of DDT has its problems. The World Health Organization and many governmental and private agencies throughout the world are conducting research to find a substitute that will be more actively biodegradable, but equally effective, cheap, and safe.

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Reference

 W. Morris, Ed., The American Heritage Dictionary of the English Language (American Heritage and Houghton Mifflin, New York, 1969), p. 1162.

The insensitivity of current toxicological practice stems largely from statistical considerations that reflect the very restricted number of animals conventionally tested for adverse effects induced by a chemical, including carcinogenicity, mutagenicity, and teratogenicity, when millions of humans are at presumptive risk (1). In spite of such insensitivity, DDT has been shown to be carcinogenic in various tests and in various species, and its continued use clearly poses potential carcinogenic hazards to man. It must be stressed that the experimental determination of carcinogenicity is a relatively uncommon occurrence; in the Bionetics carcinogenicity study of over 140 pesticides and other industrial chemicals, less than 10 percent were shown to be carcinogenic in mice, even when tested at the largest tolerated doses, with exposure commencing in infancy (2).

It is very difficult to demonstrate carcinogenic and other adverse effects of chemicals which are widely disseminated in the environment and for which sharp differentials in exposure cannot be established between large populations followed up for long periods of time. It is largely because of these difficulties that no valid epidemiological data on the carcinogenicity of DDT are available.

I freely admit to anxiety about the widespread dissemination of carcinogenic chemicals, especially when there is no evidence that they are more effective or more critically needed than other, noncarcinogenic agents. This has not been established for DDT as it is used in the United States.

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References

S. S. Epstein, Nature 228, 816 (1970).
 J. R. M. Innes et al., J. Nat. Cancer Inst. 42, 1101 (1969).

Organic Chemists and Odors

In most theories of olfaction, it is assumed that "acceptor sites" exist on the excitable portion of receptor cell membranes, where odorous molecules bind during excitation. Such theories usually state that the mechanism of odorant-acceptor attachment does not depend on simple chemical attributes of the odorant, but that it involves more subtle chemical parameters, such as molecular vibrational frequency or stereochemistry. However, experienced organic chemists often seem to be able to name unknowns by chemical class, functional groups, or certain heteroatoms. We would like to attempt to quantify this supposed ability by testing a large number of organic chemists with a series of selected odorants. Organic chemists who think they have a good nose for unknowns and who have an hour of their time to spare can write to us to receive a free, disposable testing kit. Each participant will receive a full report of the study after its completion.

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