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THE REPORT ON PESTICIDE USE*

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The increasing use of synthetic chemical insecticides which began in 1945 has been the subject of a continuing controversy. These differences of opinion reached a first climax in 1959, with the famous court battle led by ornithologist Robert Cushman Murphy against the U.S. Department of Agriculture's gypsy moth control spraying of Long Island, N.Y., and with the common-front opposition of the nation's private conservation organizations against the same agency's fire ant eradication program in the Southeast.¹

Although these difficulties with the public made the government agencies more cautious, they did not otherwise change official policy. This continued to be based on increasing dependence on chemicals as the chief, if not the sole insect control measures. Congressman Leonard G. Wolf of Michigan introduced a Chemical Pesticides Coordination Act in the 86th Congress (March 31, 1960), but the administration countered this with an Interagency Pesticide Review Board. Still nothing changed, except that more emphasis was placed on "safe use" education both by the agencies and the chemical industry. In 1961 a Federal Pest Control Review Board was formed.

Therefore, tempting as it is to mark the beginning of the pesticides controversy with the appearance of Rachel Carson's *Silent Spring*² in October, 1962, or with the articles from this book that were serialized by *The New Yorker* magazine during the previous summer,³ what Miss Carson really did was to catalyze a public reaction. Not since William Vogt's *Road to Survival*⁴ had a conservationist's call for reform stirred such a reaction and brought such vituperation upon its author.

Thanks to his insatiable curiosity about public discussion, President John F. Kennedy read Miss Carson's book and immediately ordered a review of the problem by a panel high enough above the

* The White House, *A Report of the President's Science Advisory Committee, Use of Pesticides* (1963).

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1. Brown, *Mass Insect Control Programs: Four Case Histories*, 68 *Psyche* 75-111 (1961).

2. Rachel Carson, *Silent Spring* (1962).

3. Rachel Carson, *Reporter at Large*, *The New Yorker*, June 16, June 23, and June 30, 1962.

4. Vogt, *Road to Survival* (1948).

fracas to help cut through the barrage of charge and counter-charge that obscured the picture. Like a good politician, he had given his agency heads plenty of time to settle their differences privately, but the time had now come to restore order.

Dr. Jerome Weisner, Chairman of the President's Science Advisory Committee, wisely appointed a panel, the members of which had no pesticide programs of their own to defend. Headed by Dr. Colin M. MacLeod, Professor of Medicine at New York University,⁵ the panel labored deliberately and produced the first objective evaluation of the overall pesticide picture. This did not, of course, protect it from charges of incompetence when the report appeared on May 15, 1963, an important date in the history of science and technology.

Meanwhile, the National Academy of Sciences-National Resources Council had appointed a subcommittee on pesticides-wildlife relations, but the choice of panelists was less wise and dissension marked their deliberations and delayed the report. When this did appear, in three parts, it proved a disappointing miscarriage.⁶

Given this background of conflict in public opinion which it was expected to arbitrate, and the pressures involved in the realities of big government and big business, the President's Advisory Committee did a remarkable job and deserves the nation's thanks quite as much as Miss Carson who forced the question into the spotlight.

Parts I and II of the report, an introductory sketch of the gains in insect and disease control made possible by pesticides, would have profited from a more critical distinction of the several groups of pesticides, since not all are equally troublesome. Lumping them together tends to compromise the verdict because it involves praising the defendant before trying him. There was, here, a leaning-over-backward to credit the gains (almost all economic) of pesticides use, with a phraseology that too easily lent itself to partial and misleading quotation.

The statement assumes that "society" is able to distinguish and enforce its choices, though in an economically determined society like ours, both the choices and the decisions are more likely to be supplied by government bureaucracies or industry.

5. The White House, *A Report of the President's Science Advisory Committee, Use of Pesticides* (1963).

6. See Clement, Book Review, *Pest Control and Wildlife Relationships*, *Audubon Magazine*, November-December, 1962, pp. 356-58; Egler, *Pesticides and the National Academy of Sciences*, *17 Atlantic Naturalist* 267-71 (1962).

It is also understandable, but not helpful, that the committee, perhaps for lack of time to inquire into the economics and sociology of these matters, accepted a wide range of existing attitudes as "given." These include the modern tendency to rely on various pesticides as the "sole control measure," and the undocumented notion that these chemicals have become the dominant contributing factor in our increased agricultural production. There remains a real need for an objective evaluation of these tendencies in the light of neglected alternatives.

In the section on Hazards (Part III), however, the scientific competence of the Committee came into full play and dissected the shaky ground which underlies so many official decisions on the "safety" of these synthetic chemicals. The report stresses that environmental pollution by pesticides is an unanticipated result of "recommended practices," whereas foodstuff contamination can properly be called accidental because the focus of concern by agricultural and health agencies has been on food and not on the environment. The general lack of awareness among doctors of the problem of subacute exposure, and the relative lack of research in diagnostic methods is stressed. One wishes the panel had delved more critically into the one basic study⁷ on which most of the assurances of DDT's harmlessness to man are based. On p. 9 we are told that the neurologic impairment which occurs in exposure to chlorinated hydrocarbons and organophosphates is reversible, but on p. 12 it is recognized that such symptoms may recur weeks after the last exposure.

Part IV, like almost all discussions of the alternatives to chemical control, is weak in that it stresses "biological controls," whereas the crying need is to review our pest control approaches in the light of the diversity concept⁸ and to work out integrated control systems which will give proper weight to cultural, natural, chemical, and biological control factors.

Part V outlines the government's regulatory functions and makes it plain that there is little or no control of pesticide use except as

7. Hayes, Durham & Cueto, *Notes on the Paper "The Effect of Known Repeated Oral Doses of Chlorophenothane (DDT) in Man,"* 162 *J. American Medical Ass'n* 890 (1956); Biskind, *On the Alleged Harmlessness of DDT for Man*, 10 *J. Applied Nutrition* 493-97 (1957).

8. Elton, *The Ecology of Invasions by Animals and Plants* (1958); Pimental, *Species Diversity and Insect Population Outbreaks*, 54 *Annals Entomological Soc'y of America* 76-86 (1961).

these chemicals are to be brought in direct contact with man, and the Committee plainly states its belief that it will be necessary to modify the allowable uses of some of the especially hazardous and persistent chemicals. It concluded that aldrin, dieldrin, heptachlor and chlordane had been registered for use on inadequate experimental evidence.

The Committee was properly critical of the make-up of the Federal Pest Control Review Board, wherein the representatives of the various federal agencies are called upon to pass on one another's programs. After criticizing the "eradication" concept which has been the basis of so much conflict between the U.S. Department of Agriculture and the public, the Committee considers it "reasonable to expect that every large scale operation be followed by a complete report which would appear in the public literature."⁹

In the final section, Part VI, we are given forceful and perceptive recommendations. Most important, and therefore most controversial, is Recommendation No. 5 which calls for a studied reduction of accretion of persistent pesticides in the environment. DDT, dieldrin, and heptachlor (as epoxides) are all known to remain in the soil, and retain their toxicity for at least a decade. The Committee urges that except for use in the control of disease vectors, the persistent insecticides be eliminated, and challenged government agencies, at federal and state level, to provide leadership in this return to sanity.

In addition, the Committee urged more data gathering on synthetic chemical storage in man, a monitoring program to keep track of environmental contamination problems, not only with regard to DDT but all major groups of chemicals (hydrocarbons, phosphates, carbonates, herbicides); the Committee also urged a review and tightening up of residue tolerance levels.

The Committee called, also, for the restriction or outright disapproval of use on a "reasonable doubt" basis instead of waiting until damage had been "proven." And, finally, the Committee asked that criteria for registering pesticides include consideration of their effects on wildlife, and urged more research on toxicity (including a review of the concepts of "Zero" and "no residue" levels of tolerance) and, again, that all large control programs be fully evaluated and reported on by publication.

Hearings in the House and Senate were soon organized to con-

9. The White House, A Report of the President's Science Advisory Committee, Use of Pesticides 19 (1963).

sider the charges and recommendations of the Report, and the testimony presented is part of the continuing debate.¹⁰

The citizen is well served by this controversy because, already, chemicals such as aldrin, chlordane and endrin, which have been used lavishly for a decade, have now begun to be subjected to important restrictions.

This controversy, of which the President's Science Advisory Report is but one chapter, has had the unfortunate result of creating a schism in the scientific community—between the technologically-oriented scientists working in agriculture, chemistry and nutrition, on one hand; and the uncommitted academic biologists and ecologically-oriented outdoor biologists on the other. This is a problem in the sociology of science and technology very much in need of a detailed study.

10. Interagency Coordination in Environmental Hazards (Pesticides), Part I, *Hearings Before the Subcommittee on Reorganization and International Organizations of the Senate Committee on Government Operations*, 88th Cong., 1st Sess. (1964).