

NORTH COUNTRY NOTEBOOK

by George Vukelich

In the recent Winter Issue of *Defenders of Wildlife*, "A Magazine of Wildlife Issues and Educational Articles for the Whole Family," Dr. Alfred G. Etter recalls: "The *National Geographic Magazine* for October, 1945, contained an article called, 'Your New World of Tomorrow.'" One of the illustrations showed a truck at Jones Beach, near New York City, carrying a sign reading, "DDT, POWERFUL INSECTICIDE: HARMLESS TO HUMANS." A fog applicator attached to the truck was busy spraying a cloud of DDT over both beach and bathers.

"Since this New York beach was sprayed," Dr. Etter continues, "we have sprayed a billion pounds more of this newly created chemical into a world that was never designed to handle it. We have devised 200 other types of synthetic pesticides, and named 10,000 new trade-marked formulations, and now are putting nearly a billion pounds of poison into circulation each year.

"It is high time to ask if the world is a better place to live in as a result of this two-decade barrage, and whether the earth-system can stand another two decades of this kind of man-handling. To many, it is all too obvious that in addition to the same old problems and pests, we have many new problems and pests. We are spraying more but having to spray more."

Four years ago, in her book *Silent Spring*, Rachel Carson began the storm of protest and controversy over pesticides, a storm which still rages. Today the evidence, compiled from an increasing number of sources, continues to lend weight to her arguments.

For example, scientists report that there is DDT residue present in the fatty tissue of penguins, which inhabit a region of the world where DDT is not used.

Also, because of DDT, the bald eagle may be on the verge of extinction. Some scientists insist that DDT may be responsible for the sterility of bald eagle eggs.

An authoritative support of Miss Carson's beliefs came last February when a world-famous University of Wisconsin scientist, Dr. James F. Crow, warned that the rapid development of high levels of resistance to pesticides has had serious consequences in man's fight to control disease-producing insects and other pests.

Dr. Crow, professor of genetics and zoology at the University in Madison, spoke in Washington, D.C., at a special symposium organized by the National Academy of Sciences in cooperation with the U.S. Departments of Agriculture, Interior, and Health, Education and Welfare.

Dr. Crow pointed out that the widespread use of general and very potent pesticides before testing them for mutagenicity might have the same genetic mutation effects on man as radioactive fallout has.

"The development of resistance to drugs, of which streptomycin-resistant bacteria and DDT-resistant insects are commonly known, is basically an example of Darwinian selection," Professor Crow said.

This evolutionary process is remarkable for its rapidity, and in some cases — particularly crop plants and their diseases — such evolution has proceeded simultaneously in both the host plant and its parasitic invaders.

Crow listed "at least" three serious consequences of this rapid development of resistance:

1. The control (the pesticide) ceases to be effective.
2. Larger and larger concentrations are needed to control the pest, with "correspondingly greater upset of the ecological environment and greater risk to man."
3. The short useful life of the pesticide means an increasing need for new compounds, so there is less chance for thorough testing and more chance that the compounds will be toxic to man or upsetting to the ecological community.

"The hazards to man," Professor Crow said, "and to the balance of nature could be made less if a large variety of more selective pesticides could be found. The broader the spectrum of the drugs, the greater is its risk to other species, including man."

It is widely known that phosphorous compounds found in



certain pesticides interfere with nerve functioning. Even antibiotics found in some drugs affect the functioning and replication of the life-governing molecules of DNA and RNA.

"The fact that many pesticides and antibiotics interfere with basic cellular processes," Professor Crow warned, "increases the possibility that they may have long-range effects on man's health or may induce genetic mutations which, in turn, affect future generations."

It is an old story. Men have played God before. As Carl Sandburg says, "Civilizations have gone down to garbage dumps."

The essential difficulty seems to be that man, despite the fact that he is part and parcel of the carbon cycle, regards himself as more than animal and perhaps it is this very evaluation that makes him less than animal. The majority of men feel no responsibility, no morality, no ethics in matters of penguins, bald eagles, butterflies. Our trail is littered with the bones of buffalo, passenger pigeons, and the great auk.

May I suggest that what we need is not a new bug spray, but a new belief. Aldo Leopold in his "Land Ethic" wrote that "ability to see the cultural value of wilderness boils down in the last analysis to a question of humility. The shallow-minded modern who has lost his rootage in the land assumes that he has already discovered what is important; it is such who prate of empires, political or economic, that will last a thousand years . . . a 'land ethic' changes the role of homo sapiens from conqueror of the land community to plain member and citizen of it. It implies respect for his fellow members and also respect for the community. . . . Quit thinking about decent land use as solely an economic problem. Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise."

For as also has been observed: "We, none of us, know fully the true relationship of one to the other. It may well be that if you destroy a flower, you will disturb a star."

Happily, there are at last, we must say, a few positive acts, some people who are beginning to heed the evidence, like Conservation Director L. P. Voigt, who recently urged all users of pesticides to substitute degradable types wherever possible instead of using kinds which build up in the environment to the detriment of all living things.

Citing conservation department research which found DDT in specimens of Wisconsin fish, Voigt said, "Until we know more about DDT and other chlorinated hydrocarbons and their effect on both wildlife and man, the sensible and logical procedure is to use substitute chemicals even if they are more costly or not quite as effective."