

book review

BY BEATRICE TRUM HUNTER

SILENT SPRING

By RACHEL CARSON

THE QUESTION IS whether any civilization can wage relentless war on life without destroying itself and without losing the right to be called civilized." Rachel Carson, distinguished scientist and writer, poses this question in her presentation of the forces that modern man has unleashed in the use of poisons, especially pesticides, on the living community in her new book, *Silent Spring*. Her concern is with the whole "intricate web of life whose interwoven strands lead from microbes to man."

Explores Threats to Life

Miss Carson points out that all life is revealed as one in the process of cell division, common to all earthly life. "Neither man nor amoeba, the giant sequoia nor the simple yeast cell, can long exist without carrying on this process of cell division. Anything that disturbs mitosis is therefore a grave threat to the welfare of the organism affected and to its descendants." *Silent Spring* explores these threats to life today as well as our genetic heritage for future generations.

The author is careful to point out that it is not her contention that chemical insecticides must never be used. But she feels that up to now, poisonous and biologically potent chemicals have been in use indiscriminately by persons largely or wholly ignorant of their potential dangers. She notes that "the town fathers of a thousand communities lend willing ears to the chemical salesman and the eager contractor who will rid the roadsides of 'brush'—for a price. It is cheaper than mowing, is the cry . . . but were the true costs figured, the wholesale broadcasting would be seen to be more costly in dollars as well as infinitely damaging to the long range health of the landscape." She remarks, "If the Bill of Rights contain no guar-

antee that a citizen shall be secure against lethal poisons distributed either by private individuals or by public officials, it is surely only because our forefathers, despite their considerable wisdom and foresight, could conceive of no such problem."

Ecological Approach

With an ecological approach, Miss Carson explores in detail the impact of chemicals, especially pesticides, on all forms of life. She builds her case, piece by piece, with documentation gathered from worldwide sources, little known to laymen. Fifty-five pages are devoted to bibliography of "principle sources" which will be useful for interested persons. This documentation will also serve as a strong defense against attempts to discredit the book.

Miss Carson charges that the critically important subject of soil ecology has been largely neglected, even by the scientists, and almost completely ignored by chemical control men. Programs have proceeded on the false assumption that the soil can and will sustain any amount of poison without striking back. Yet even moderate applications of insecticides over a period of years may build up to fantastic quantities in soil.

Explodes Myth

The author explodes the myth that herbicides pose no threat to animal life. She documents the fact that plant killers include a wide variety of chemicals that act on animal tissue as well as on vegetation. Some are general poisons, some are powerful stimulants of metabolism, some induce malignant tumors and others strike through genetic mutation. Experimentally, 2-4-D disturbs the basic physiological process of cell respiration and imitates X-rays in damaging chromosomes. Reproduction of birds may be affected at levels far

below those that cause death.

Miss Carson admits that there is much conflicting evidence regarding pesticide damage. She offers this opinion: "Credibility of witness is of first importance. The professional wildlife biologist on the scene is certainly best qualified to discover and interpret wildlife loss. The entomologist, whose specialty is insects, is not so qualified by training, and is not psychologically disposed to look for undesirable side effects of his control program. Yet it is the control men in state and federal government—and of course the chemical manufacturers—who steadfastly deny the facts reported by the biologists and declare they see little evidence of harm to wildlife."

Nature's Balance Ignored

In some quarters today, Miss Carson says, it is fashionable to dismiss "the balance of nature" concept. But, she reminds us, "the balance of nature" is still with us. It is a complex, precise, highly integrated system of relationships between living things which cannot safely be ignored with impunity. She points out that chemical controls overlook two critically important features of the system of "balance of nature". First, the really effective control of insects is applied by nature, not by man. Population of insects is kept in check by "resistance of the environment" which depends on the amount of food available, weather, climate, presence of competing or predatory species, etc. Second, the truly explosive power of insect species to reproduce, once the resistance of the environment is weakened, is a neglected fact.

The author demonstrates convincingly that the method of mass chemical control had only limited success, and also threatens to worsen the very condition it is intended to curb. In

cases of control of insect pests of forest and crop, one program after another has failed: the gypsy moth, spruce budworm, fire ant, Dutch elm tree, Japanese beetle . . . Chemical control has the feature of built-in obsolescence. It is self-perpetuating and needs frequent and costly repetition.

Similar Failure

There is a similar failure of chemical controls for insect-borne diseases such as malaria. "The question that has now urgently presented itself is whether it is either wise or responsible to attack the problem by methods that are rapidly making it worse. The world has heard much of the triumphant war against disease through the control of insect vectors of infection, but it has heard little of the other side of the tory—the defeats, the short-lived triumphs that now strongly support the alarming view that the insect enemy has been made actually stronger by our efforts. Even worse, we may have destroyed our very means of fighting . . . If the dead end is reached before control of disease-carrying insects is achieved, our situation will indeed be critical."

In a vague way, the general public has a limited awareness of some damage by pesticides to wildlife through spasmodic accounts that have trickled through to the press from time to time. However, *Silent Spring* makes available, for the first time, a full, shocking account from sources which have never reached the layman. The materials, especially those dealing with human life, heretofore have only been available in technical and professional periodicals. By assembling them, Miss Carson creates the whole mosaic. The total picture should shake the public from its apathy, and arouse it to demand safeguards.

Ecology Within Body

Miss Carson points out that there is an ecology of the world within our bodies. In this unseen world, a minute cause can produce a mighty effect. The effect, moreover, is seemingly unrelated to the cause. It may appear in a part of the body remote from the area where the original injury was sustained. This may also be widely separated in space and time.

Miss Carson also points out that the whole concept of genetic damage by something in the environment is relatively new and little understood except by geneticists. Regarding mutagenic effects, she says: "The fact that chemicals may play a role similar to radiation has scarcely dawned on the public mind, nor on the minds of most medical or scientific workers. For this reason the role of chemicals in general use has not yet been assessed. It is extremely important that this be done." Regarding cellular oxidation, which plays a crucial role in life functions, Miss Carson remarks that "medical men who received their basic training before 1950 have had little opportunity to realize the critical importance of the process and hazards of disrupting it."

Chemicals and Cancer

One of the most impressive chapters in the book is the one concerned with the role of chemicals as cancer-inciting substances. The author comments wryly that the chemical agents of cancer have become entrenched in our world "in man's search for a better and easier way of life, and because the manufacture and sale of such chemicals has become an accepted part of our economy". But, she asks, can we afford to ignore the fact that we are now filling our environment with chemicals that have the power to strike directly at the chromosomes affecting them? "Is this too high a price to pay for a sproutless potato or a mosquito-less patio?" Miss Carson reminds us that we pour millions into research and invest all our hopes in vast programs to find cures for established cases of cancer, but we neglect the golden opportunity to prevent it.

Although *Silent Spring* is a detailed study of one group of chemicals, namely pesticides, the author points out that allied chemicals of drugs, cosmetics, food additives, detergents, plastics and other modern chemicals are also implicated in the "sea of carcinogens" with which we surround ourselves in our modern environment.

Pesticides in Food

Regarding pesticides in foodstuffs, Miss Carson concludes that "as matters stand now, we are in little better posi-

tion than the guests of the Borgias." She describes the inadequacies of consumer protection: FDA has limited jurisdiction, small numbers of inspectors, inadequate testing programs. She is critical of a testing program which is unrealistic, and tolerance levels which have paper value only. She recommends the elimination of tolerances on chlorinated hydrocarbons, organic phosphates and other highly toxic chemicals. She suggests, instead, the substitution of other materials, especially the non-chemical ones.

After exploring thoroughly various phases of pesticidal damage on all forms of life, Miss Carson directs us to harmless alternatives, which exist in great variety. She tells us that the best and cheapest control of vegetation management is not achieved with chemicals, but with other plants; ragweed control is best achieved with maintenance of dense shrubs, ferns and other perennials; crabgrass can be choked out by competition with other grasses. So it goes. Such a program makes use of specialists in various areas of biology, "all pouring their knowledge and their creative inspirations into the formation of a new science of biotic controls."

A mere report of the contents of *Silent Spring* does not do justice to this magnificent book. Miss Carson has brought to this work the same rare combination of scientific truthfulness and poetic beauty which mark her earlier works as well. She brings to the reader a sense of urgency of the problem, but also a sense of awe and humility in examining the world about her, and sharing her findings. *Silent Spring* is bound to create profound repercussions and institute changes which are long overdue. It is a book which shows the errors of public officials as well as private industry, and the folly of shortsighted programs. The problems posed require precise answers from extensive research which at present is lacking or insufficient. Regarding safeguards against the poisons, Miss Carson asks, "When will the public become sufficiently aware of the facts to demand such actions?" *Silent Spring* provides a powerful key. ●

NATURAL FOOD AND FARMING OCTOBER 1962

LEE FOUNDATION

612 N. VERMONT AVE.,

NO. 5-5971 Los Angeles 4, Calif.

Copyright © Price-Pottenger Nutrition Foundation. All rights reserved.

No part of this research may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the publisher. Visit <http://ppnf.org> for more information.