

Rachel Carson

Silent Spring

Warnings against an Ecological Tragedy

Edited with Notes

by

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THE EIHŌSHA LTD. Tokyo

Seven Chapters
from
SILENT SPRING
by
Rachel Carson

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PRINTED IN JAPAN

は し が き

本書はアメリカの生物遺伝学者 (genetic biologist) の Rachel Carson (1907-64) の主著 *Silent Spring* (1962) の中から、より重要であり興味深いと思われる7章を選び、テキスト版に編纂したものである。

Carson 女史は Pennsylvania 州に生まれ、Pennsylvania College for Women で英文学を学び、後に博物学に対する尽きない興味から、Johns Hopkins University の大学院に進み遺伝学を、そして University of Maryland に進み動物学を専攻した。25歳で学位を得て1936年から1952年の間生物遺伝学者として研究を続け、その後 U.S. Fish and Wildlife Service に勤め、そこで出される研究誌の編集長として研究と出版に尽力した。その後 Massachusetts 州の Wood Hole にある海洋生物学研究所で研究に従事した。Carson 女史は文筆の才能にも恵まれていて、海洋生物や地球環境に関する書物を著し、数々の大きな賞を受賞している。また本書の他に *Under the Sea Wind*, *The Edge of the Sea*, *The Sea Around Us* などの著書を著している。

今日ようやくエコロジーの問題や地球環境保護の問題が日常的に議論されるようになってきたが、Carson 女史は今から30年以上も前に化学薬品(殺虫剤や除草剤を含めた広い意味での農薬)を大量に、しかも無責任に使用することによって、いかに水や土壌、野生生物、人間に大きな影響を与え、自然界の秩序ある均衡を損ない、最終的には人間を含めて地球上に棲息する生物全てを死に至らしめるかを、実証的なデータに基づいて警告していた。

歴史が始まって以来、未曾有の出来事が20世紀の半ばに起こってきたのである。地球上に棲む生物の一種族に過ぎない人間が、恐るべき力を手に入れて自然を変え、自然を破壊しようとしているのである。「ただ自然の秩序をかき乱すのではない。今までにない新しい力——質の違う暴力で自然が破壊されていく。ここ25年の動きを見れば、そう言わざるをえない。例えば自然の汚染。空気、大地、河川、海洋、全て恐ろしい死そのものに繋がる

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毒に汚されている。そして、大抵もう二度ときれいにならない。食物、ねぐら、生活環境などの外の世界が汚れているばかりではない。禍いのもと、既に生物の細胞組織そのものに潜んでいく。もはや元に戻せない。汚染と言えば放射能を考えるが、化学薬品は放射能にまさるとも劣らぬ禍いをもたらす、万象そのもの生命の核そのものを変えようとしている。… 畑、森林、庭園にまき散らされた化学薬品は、放射能と同じようにいつまでも消え去らず、やがて生物の体内に入って、中毒と死の連鎖を引き起こしていく。」と Carson 女史は警告している。

とりわけ私たちが注目しなければならないのは、化学薬品が放射能と肩を並べる恐るべき力を生体に与えるということである。原著 13 章に詳しく述べられているが、殺虫剤や除草剤を含む種々の化学薬品が体内に入ると、放射能の作用と同様に染色体を傷め、正常な細胞分裂をかき乱し、突然変異を招くのである。染色体障害による遺伝物質の破損のために、当人が病気になることもあるが、世代があらたまってから初めて影響がでることもある。人間に邪魔になるというだけの理由で、数種の害虫を殺すために猛毒の殺虫剤のような化学薬品を用いることによって、人類にとって取り返しのつかないような障害を遺伝子に与え、人工的に遺伝が歪められてしまうということ、まさにこれは現代の脅威と言うべきあり、私たちの文明を脅かす最後にして最大の危険である。

Carson 女史は、自然を征服しようとしてしゃにむに進んできた人間の傲慢さを非難している。そしてこの地球上に生命が誕生して以来、生命と環境が互いに力を及ぼし合いながら生命の歴史を織りなしてきたのであり、その意味でも地球に棲む全ての生命が一つの生命体であり、お互いに有機的な関係で依存し合って生きている事実を指摘して、人間が他の生物と共存して生きていく生き方を主張している点で、本書は現代の地球環境問題の核心をつく好著と言える。私たちの棲んでいる地球は自分たち人間だけのものではない——この考え方から、豊かな創造的な努力が今後なされなければならないであろう。

1993 年 9 月 3 日

編 注 者

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Chapter 1

A Fable for Tomorrow

There was once a town in the heart of America where all life seemed to live in harmony with its surroundings. The town lay in the midst of a checkerboard of prosperous farms, with fields of grain and hillsides of orchards where, in spring, white clouds of bloom drifted above the green fields. In autumn, oak and maple and birch set up a blaze of colour that flamed and flickered across a backdrop of pines. Then foxes barked in the hills and deer silently crossed the fields, half hidden in the mists of the autumn mornings. 5

Along the roads, laurel, viburnum and alder, great ferns and wildflowers delighted the traveller's eye through much of the year. Even in winter the roadsides were places of beauty, where countless birds came to feed on the berries and on the seed heads of the dried weeds rising above the snow. The countryside was, in fact, famous for the abundance and variety of its bird life, and when the flood of migrants was pouring through in spring and autumn people travelled from great distances to observe them. 10
15
Others came to fish the streams, which flowed clear and cold out of the hills and contained shady pools where trout lay. So it had

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been from the days many years ago when the first settlers raised their houses, sank their wells, and built their barns.

Then a strange blight crept over the area and everything began to change. Some evil spell had settled on the community: 5 mysterious maladies swept the flocks of chickens; the cattle and sheep sickened and died. Everywhere was a shadow of death. The farmers spoke of much illness among their families. In the town the doctors had become more and more puzzled by new kinds of sickness appearing among their patients. There had 10 been several sudden and unexplained deaths, not only among adults but even among children, who would be stricken suddenly while at play and die within a few hours.

There was a strange stillness. The birds, for example — where had they gone? Many people spoke of them, puzzled and 15 disturbed. The feeding stations in the backyards were deserted. The few birds seen anywhere were moribund; they trembled violently and could not fly. It was a spring without voices. On the mornings that had once throbbed with the dawn chorus of robins, catbirds, doves, jays, wrens, and scores of other bird 20 voices there was now no sound; only silence lay over the fields and woods and marsh.

On the farms the hens brooded, but no chicks hatched. The farmers complained that they were unable to raise any pigs — the litters were small and the young survived only a few days. The 25 apple trees were coming into bloom but no bees droned among the blossoms, so there was no pollination and there would be no fruit.

The roadsides, once so attractive, were now lined with browned and withered vegetation as though swept by fire. These, too, were silent, deserted by all living things. Even the streams were now lifeless. Anglers no longer visited them, for all the fish had died. 5

In the gutters under the eaves and between the shingles of the roofs, a white granular powder still showed a few patches; some weeks before it had fallen like snow upon the roofs and the lawns, the fields and streams.

No witchcraft, no enemy action had silenced the rebirth of 10 new life in this stricken world. The people had done it themselves.

This town does not actually exist, but it might easily have a thousand counterparts in America or elsewhere in the world. I 15 know of no community that has experienced all the misfortunes I describe. Yet every one of these disasters has actually happened somewhere, and many real communities have already suffered a substantial number of them. A grim spectre has crept upon us almost unnoticed, and this imagined tragedy may easily become 20 a stark reality we all shall know.

What has already silenced the voices of spring in countless towns in America? This book is an attempt to explain.

Chapter 2

The Obligation to Endure

The history of life on earth has been a history of interaction between living things and their surroundings. To a large extent, the physical form and the habits of the earth's vegetation and its animal life have been moulded by the environment. Considering
5 the whole span of earthly time, the opposite effect, in which life actually modifies its surroundings, has been relatively slight. Only within the moment of time represented by the present century has one species — man — acquired significant power to alter the nature of his world.

10 During the past quarter-century this power has not only increased to one of disturbing magnitude but it has changed in character. The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials. This pollution is for
15 the most part irrecoverable; the chain of evil it initiates not only in the world that must support life but in living tissues is for the most part irreversible. In this now universal contamination of the environment, chemicals are the sinister and little-recognized partners of radiation in changing the very nature of the world —
20 the very nature of its life. Strontium 90, released through nuclear explosions into the air, comes to earth in rain or drifts down as

fallout, lodges in soil, enters into the grass or corn or wheat grown there, and in time takes up its abode in the bones of a human being, there to remain until his death. Similarly, chemicals sprayed on croplands or forests or gardens lie long in soil, entering into living organisms, passing from one to another 5 in a chain of poisoning and death. Or they pass mysteriously by underground streams until they emerge and, through the alchemy of air and sunlight, combine into new forms that kill vegetation, sicken cattle, and work unknown harm on those who drink from once-pure wells. As Albert Schweitzer has said, 10 'Man can hardly even recognize the devils of his own creation.'

It took hundreds of millions of years to produce the life that now inhabits the earth — aeons of time in which that developing and evolving and diversifying life reached a state of adjustment and balance with its surroundings. The 15 environment, rigorously shaping and directing the life it supported, contained elements that were hostile as well as supporting. Certain rocks gave out dangerous radiation; even within the light of the sun, from which all life draws its energy, there were short-wave radiations with power to injure. Given 20 time — time not in years but in millennia — life adjusts, and a balance has been reached. For time is the essential ingredient; but in the modern world there is no time.

The rapidity of change and the speed with which new situations are created follow the impetuous and heedless pace 25 of man rather than the deliberate pace of nature. Radiation is no longer merely the background radiation of rocks, the

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bombardment of cosmic rays, the ultra-violet of the sun that have existed before there was any life on earth; radiation is now the unnatural creation of man's tampering with the atom. The chemicals to which life is asked to make its adjustment are no longer merely the calcium and silica and copper and all the rest of the minerals washed out of the rocks and carried in rivers to the sea; they are the synthetic creations of man's inventive mind, brewed in his laboratories, and having no counterparts in nature.

To adjust to these chemicals would require time on the scale that is nature's; it would require not merely the years of a man's life but the life of generations. And even this, were it by some miracle possible, would be futile, for the new chemicals come from our laboratories in an endless stream; almost five hundred annually find their way into actual use in the United States alone. The figure is staggering and its implications are not easily grasped — five hundred new chemicals to which the bodies of men and animals are required somehow to adapt each year, chemicals totally outside the limits of biologic experience.

Among them are many that are used in man's war against nature. Since the mid 1940s over two hundred basic chemicals have been created for use in killing insects, weeds, rodents, and other organisms described in the modern vernacular as 'pests'; and they are sold under several thousand different brand names.

These sprays, dusts and aerosols are now applied almost universally to farms, gardens, forests, and homes — non-selective chemicals that have the power to kill every insect, the 'good' and the 'bad', to still the song of birds and the leaping of