Dangerous Chemicals in Food: We Have Evolved in Nature Not in Dupont or Monsanto

by Marie-Monique Robin via sal - Truth-out *Sunday, Nov 30 2014, 8:29pm*
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> The title says it all -- nature cannot be improved on recent human history verifies that -- the environment, including humanity is in extreme danger today.

Recently the UN stated that modern methods of mono-culture are destroying the food chain and environment. It cites mixed, organic, local farming as the VIABLE solution to toxic mass 'food' production.

How Chemicals Have Contaminated the Food Chain

From Pesticides to Packaging, How Chemicals Have Contaminted the Food Chain and Are Making Us Sick": "For readers with a strong interest in environmental and public health and food safety policy, this may be one of the most important books of the year."

Excerpt from the book follows:

A few of the topics discussed include the origins of the chemical industry in chemical warfare; its history of "strategizing how to control and manipulate research on the toxicity of its products, while waging a merciless war on all the scientists wishing to maintain their independence in the name of the defense of public health"; the modern epidemic of cancers and other diseases that exploded at the end of the 19th century; the weaknesses of epidemiological studies; the idea of acceptable daily intake; case studies of specific chemicals; and the "cocktail effect."

There are several painful stories of poisoning victims' struggles for recognition and compensation, which serve to break up and humanize the flood of technical information. In her conclusion, Robin calls for a new precautionary approach to approving chemicals that errs on the side of protecting people rather than industry.

DDT and the Beginning of the Industrial Age

"Can anyone believe it is possible to lay down such a barrage of poisons on the surface of the earth without making it unfit for all life?" Rachel Carson posed this question in Silent Spring, published in 1962, considered the founding work of the ecological movement. "They should not be called 'insecticides' but 'biocides.' " She went on: "This industry is a child of the Second World War. In the course of developing agents of chemical warfare, some of the chemicals developed in the laboratory were found to be lethal to insects. The discovery did not come by chance: insects were widely used to test chemicals as agents of death for men."

Fritz Haber's work on chlorinated gases did indeed open the way to the industrial production of synthetic insecticides, the most well-known of which is DDT (dichlorodiphenyltrichloroethane), one of the large family of organo- chlorines. An organochlorine is an organic compound in which one or more hydrogen atoms have been replaced by chlorine atoms, forming an extremely stable chemical structure that is therefore resistant to environmental degradation. Some are considered "persistent

organic pollutants" (POPs), because they accumulate in animal and human fatty tissue and because their extreme volatility enables them to move through the atmosphere to contaminate the remotest areas of the planet. I will return to the damaging effects of POPs, several of which—known as the "dirty dozen" (from the 1967 Robert Aldrich film)—were banned by the Stockholm Convention adopted on May 22, 2001, by the United Nations Environment Programme (UNEP), but still pollute the environment and even mothers' milk. Among them are Monsanto's polychlorinated biphenyls (PCBs), along with nine pesticides, including DDT, the "miracle insecticide" that began its brilliant career during World War II, bringing in its wake many molecules developed between the wars.

Synthesized by the Austrian chemist Othmar Zeidler in 1874, DDT was left in a laboratory drawer until 1939, when the Swiss chemist Paul Müller, who was working for the Geigy company, identified its properties as an insecticide. His discovery had such great success that, only nine years later (record time) he won the Nobel Prize in Medicine. Appearing in solid form, insoluble in water—to be used it has to be dissolved in an oil—DDT was first used by the U.S. Army in Naples in 1943, to contain a typhus epidemic; the disease, transmitted by lice, was decimating Allied troops. The massive operation was repeated in the South Pacific to eradicate the anopheles mosquito, the carrier of malaria, and later as an antiseptic for death camp survivors, Korean prisoners, and the German civilian population when the defeated country was occupied.

Yet the organochlorine pesticide was never used for military purposes during World War II, because it seems all high commands had learned the lesson of the Great War. In any event, this is what Major William Buckingham suggested in a book published in 1982 by the U.S. Office of Air Force History, where he notes that "the Allies and Axis in World War II abstained from using the weapon either because of legal restrictions, or to avoid retaliation in kind." But in the aftermath of the war, DDT was universally celebrated as a "miracle insecticide" able to defeat any harmful insect. I have been able to consult some hallucinatory audiovisual archives in which one can see entire cities in the United States treated with DDT in the 1950s. Sprayers go up and down the streets spewing huge white clouds, while housewives are asked to disinfect their cupboards with sponges soaked in the insecticide. Authorized in agriculture in 1945, DDT was later used massively in the treatment of crops, forests, and rivers, in an impressive expenditure of resources.

In 1955, the WHO launched a vast campaign against malaria in many parts of the world—Europe, Asia, Central America, and North Africa. But initial successes, sometimes accomplishing complete eradication of the disease, were followed by disillusionment, because the mosquitoes carrying the parasite that causes the disease very rapidly developed resistance to DDT, resulting, in particular in India and Central America, in a spectacular resurgence of the scourge. But for the chemical industry, with Monsanto and Dow Chemical in the lead, it was a jackpot: from 1950 to 1980 more than forty thousand tons of DDT were sprayed around the world every year, with production reaching a record of 82,000 tons in 1963 (making for a total of 1.8 million tons between the early 1940s and 2010). In the United States alone, some 675,000 tons were sprayed before the agricultural use of DDT was banned in 1972.

As Rachel Carson pointed out in Silent Spring, "the myth of the harmlessness of DDT rests on the fact that one of its first uses was the wartime dusting of many thousands of soldiers, refugees, and prisoners, to combat lice." In addition, there is its low acute toxicity in mammals: classified as "moderately hazardous" by the WHO, its LD50 is only 113 mg/kg (for rats). On the other hand—I will come back to this in Chapters 16 and 17—its long-term effects are terrible: acting as an endocrine disruptor, it leads to cancer, birth defects, and reproductive disorders, in particular for those subject to prenatal exposure.

Boosted by the success of DDT and other organochlorine pesticides, a second category of

insecticides appeared in the wake of World War II. These were the organophosphates, whose development was directly connected to research on new poison gases, but which, for the same reasons as for DDT, were never used for military purposes. As the official site of the French Observatory for Pesticide Residues (Observatoire des résidus de pesticides, ORP), established by the French government in 2003, soberly states: "not having been used during hostilities, they were used against insects." Designed to attack the nervous system of insects, these molecules have a much more elevated acute toxicity than organochlorines, but they degrade more quickly. In this family are highly hazardous insecticides like parathion (LD50: 15 mg/kg), used as early as 1944, malathion, dichlorvos, and chlorpyrifos, as well as carbaryl (responsible for the Bhopal disaster), and sarin (LD50: 0.5 mg/kg), a highly toxic gas developed in 1939 in the IG Farben laboratories and now considered a "weapon of mass destruction" by the United Nations.

The Precursors of Agent Orange

Launched at top speed thanks to synthetic insecticides, the green revolution also involved the marketing of chemical herbicides developed in British and American laboratories during World War II. In the early 1940s, researchers succeeded in isolating the hormone that controls plant growth, and synthetically reproduced the molecule. They observed that, injected in small doses, the artificial hormone strongly stimulated plant growth, while, in contrast, high doses caused the death of plants. This led to the creation of two highly effective weed killers that initiated a veritable "agricultural revolution and laid the corner stone of present-day weed science," in the words of the American botanist James Troyer. The two herbicides were 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), two chemical molecules in the chlorophenol family.

Researchers soon recognized the wartime potential of these extremely powerful weed killers, because they made it possible to destroy crops and thereby starve enemy armies and populations. In 1943, the UK Agricultural Research Council launched a secret testing program that bore fruit in Maylasia in the 1950s where, for the first time in history, the British army used herbicides to destroy the communist insurgents' harvests. At the same time in the United States the Fort Detrick, Maryland, Biological Warfare Center was testing Dinoxol and Trinoxol, mixtures of 2,4-D and 2,4,5-T, the ancestor of Agent Orange, the defoliant used massively by the U.S. Army during the Vietnam War.

Indeed, although the Allies had renounced the use of chemical weapons, fearing above all an escalation that would have produced a terrible backlash, the emergence of the Cold War lifted this circumstantial taboo; for the White House any means were justified to combat the communist threat. So, from January 13, 1962, the launch date of Operation Ranch Hand, to 1971, some 80 million liters of defoliants were dumped on Vietnam, contaminating for decades more than 8 million acres and three thousand villages; 60 percent of the products used were Agent Orange, which is still causing birth defects thirty-five years after the end of the war.

The extreme toxicity of this chemical weapon is principally due to 2,4,5-T, a dreadful poison that is characteristically polluted by very small quantities of dioxin or TCDD. Considered the most toxic substance ever created by man—a by-product of industrial processes, it does not exist in nature—the molecule was isolated in a Hamburg laboratory in 1957. It is now known that its LD50 is 0.02 mg/kg (for rats) and that, according to a Columbia University study published in 2003, dissolving 80 grams of dioxin in a drinking water system could eliminate a city of 8 million people. And estimates agree that in Vietnam 400 kilograms of pure dioxin were dumped in the southern part of the country.

For the general public, TCDD emerged from the secrecy of laboratories on July 16, 1976, with a serious industrial accident known as the Seveso disaster. On that day, a reactor explosion in an

Italian 2,4,5-T factory owned by the multinational Hoffmann-La Roche caused the release of an extremely toxic cloud in the Seveso region of Lombardy. Cattle died en masse, and officially 183 people contracted chloracne, an extremely serious condition resulting from dioxin poisoning, which manifests itself by an eruption of pustules all over the body, lasting several years and sometimes permanently.

The characteristics of this human-created disease had been widely discussed in the medical literature beginning in the late 1930s, after the entry onto the market of pentachlorophenol, a cousin of 2,4,5-T, made by Monsanto and Dow Chemical and used as a fungicide in the treatment of wood as well as in the whitening of paper pulp. For his 2007 book, How Everyday Products Make People Sick, Paul Blanc, professor of occupational and environmental medicine at the University of California, consulted the archives of the Journal of the American Medical Association (JAMA), where he found many letters from doctors asking for advice on the treatment of patients suffering from this dreadful skin disease, which was then unknown. "Nowhere in the literature have I found any case of caustic or chemical burn which lasted over several years unless the patient was in constant contact with the agent," reported a baffled Dr. Karl Stingily of Mississippi in a paper presented at a conference of the Southern Medical Association. At the same conference, where this "new epidemic" was discussed at length, Dr. M. Toulmin Gaines of Alabama reported the case of a patient who worked in a lumber factory, a father of two young children: "He had acne . . . with comedones [medical term designating the specific lesions of acne] all over his face and back and shoulders and arms and thighs. His two children were a girl about five years old and a little boy about three. They had comedones all over their faces. They had a typical acne on the face. The boy had an indurated acne on the back of his neck such as you would see on a man about thirty years old... I diagnosed it as chlorine acne and the children got it from the patient's clothing. He said that when he came home with his overalls on, the children would grab him around the legs and hug him and he would take them up in his lap."

The same symptoms were secretly observed by Monsanto after an explosion in a 2,4,5-T factory in Nitro, West Virginia, on March 8, 1949. Victims of dioxin poisoning, the workers present for the accident or called on to clean up the site, experienced nausea, vomiting, and persistent headaches, and developed a severe form of chloracne. On November 17, 1953, a similar accident occurred in a BASF factory producing the herbicide that was then flooding the fields of Europe and America. Followed just as secretly at the firm's request by Dr. Karl Schultz, the exposed workers developed the same skin disease, which the Hamburg physician named chloracne. Throughout the 1950s many cases of this extremely disfiguring disease were recorded in the four corners of the United States, while an "amazing rain of death" fell upon the surface of the earth.

http://www.truth-out.org/progressivepicks/item/27667-our-daily-poison-how-chemicals-have-contaminated-the-food-chain

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