

## Rachel Carson's Daughter

"Dear Lynn, Jane, Sheryl, Joan, Jean," the letter begins. It is a letter from my father. It is typewritten, which is a good thing, since my father's handwriting was notoriously difficult to decipher. The letter is addressed to his daughters – all five of us, named in order from oldest to youngest. It is the only letter he ever wrote to us as a group. And the topic of this formal looking, one of a kind letter? DDT.

I am certain this is the only father-daughter letter ever written that begins: "*Many times in the past, especially during your high school and early college years, we've had discussions regarding my involvement with the manufacture of DDT and Lindane (the gamma isomer of benzene hexachloride), another highly persistent, inexpensive, broad-spectrum insecticide...*" Sent along with the letter was an article titled *The Mosquito Killer* from the July 2, 2001, issue of the *New Yorker*

Reading along, it soon becomes clear that the purpose of the letter, and its supporting article, are to exonerate my father, Jack Lukas, for his role in producing untold tons of pesticides – pesticides of the type that accumulate in the food chain and persist for decades, and are therefore still in our bodies and in the environment surrounding us. These chemicals have been linked to low sperm counts, miscarriages, and premature births<sup>i</sup>, making him – some would argue -- a metaphorical baby-killer. But that is precisely the reputation he wanted to avoid. In the letter it is clear that he would rather be remembered as a *Hero* in a *War*. The enemy was malaria, the weapon of choice was DDT, and he was the dashing young chemical engineer responsible for saving hundreds of thousands, maybe millions, of lives.

**This article was published in "Rachel Carson's *Silent Spring: Encounters and Legacies*," ed. Culver, Rauch, and Ritson (Rachel Carson Center, 2012).**

Joan Maloof, PhD, is the founder of the Old-Growth Forest Network and a retired professor of Biological Sciences and Environmental Studies at Salisbury University, in Maryland, USA. She is the author of *Among the Ancients: Adventures in the Eastern Old-Growth Forests* (Ruka Press, 2011) and *Teaching the Trees: Lessons from the Forest* (University of Georgia Press, 2005). She has contributed chapters to *Writing the Future: Progress and Evolution* (MIT Press, 2004) and *Women Writing Nature* (Roman and Littlefield Publishers, 2008). Maloof has also published in numerous scientific journals such as *Ecology*, *International Journal of Environmental Studies*, and *American Journal of Botany*.

Malaria is a disease caused by microscopic one-celled organisms carried from person to person by mosquitoes. It kills about a million people a year,<sup>ii</sup> most of them African children under the age of five. That's more deaths *per year* than the total of all the American's killed in all of the wars so far. DDT both repels and kills mosquitoes, so its use drastically reduces deaths from malaria.

My father's involvement with DDT began the year I was born, 1956, and continued until I was twelve years old. He was in charge of DDT production for Allied Chemical's Marcus Hook plant in Pennsylvania, USA, and he did his work well. As he explains in the letter, "*By means of tricks, shortcuts, and minor equipment changes – a bigger pump here, a larger diameter pipe there, we raised output to eighty thousand pounds per day by 1960. That's twenty-eight million pounds per year – at twenty-five cents per pound.*"

I have pre-school memories of riding with my mother to drop him off at the plant so she could use the car for grocery shopping. I remember exactly what he wore to work: the khaki pants, the thick wool socks with a red band around the top, and the tan lace-up boots. I also remember my mother hanging his work clothes to dry on the line in the yard – alongside my little dresses. No doubt they were washed together and DDT was pervasive in my home, in my backyard, and in the air and water of my community. I was two years old when Rachel Carson started writing *Silent Spring*. I was six when it was published. Although I have no clear memory of household discussions about Carson, I did have the general sense that she was disliked... along with the government regulators. At the dinner table I heard the sixties manufacturing mantras: "*the solution to pollution is dilution*" (in response to concerns about the chemicals that were sent through pipes into the Delaware River) and "*the soil filters out impurities*" (in response to concerns about chemicals leaching into the groundwater from unlined pits). I remember talk about CFCs being restricted because of the hole in the ozone layer. Dad was against the restrictions.

Up to this point any one of my sisters could have written this story, but here is where it becomes uniquely my own, because I am the one who became...an *environmentalist*. I am the child who grew up to side with Rachel Carson, the one who voted for Barry Commoner<sup>iii</sup>, the one with a Ph.D. in ecology, the one who has a plaque in her yard declaring it a "pesticide-free zone." I hug trees, I eat organic food.

“You think you’ve got problems?” my father was known to reply to colleagues complaining about the tattoos, drug use, or legal problems of their children. “My daughter’s an *environmentalist*.”

In the letter my father’s animosity toward Carson is evident. If he was a hero engaged in a war she was a traitor – a double agent working from the inside to prevent victory.

Depending upon your point of view it may seem either utterly improbable or eminently logical that I grew up to become an environmentalist. Was my choice of careers a result of rebellion against parental values – that time-honored tradition? Or was more mystical -- Mother Nature seeking the balance she is so well known for? Rachel Carson never had a daughter, but if she did would her daughter be someone like me? Both Carson and I first loved the world as *naturalists*, in college we both studied the world as *scientists*, later we both communicated what we knew as *writers*. My world view is closer to Rachel Carson’s than it is to my own father’s.

Or would Carson’s daughter be completely different – perhaps an industrial capitalist, more like my father. Carson, had she lived long enough, might have had to explain to her friends that her daughter chose to become one of the many attorneys defending Monsanto.

Despite our differences my father and I kept a warm love burning, one for the other. His letter closes: “*With love and much hope for your comments on the article.*”

I have a feeling I am the only daughter who responded with articles for *him* to read; articles that pointed out how the fast rate of insect reproduction, combined with the selection pressure from pesticides, resulted in insect species that quickly evolve pesticide resistance. Deadly elixirs alone could never solve the insect-vectored disease problem. The solutions to malaria are all multi-dimensional and include physical barriers, such as mosquito netting; other species, such as insect eating bats and birds; and preventative medicine. *The war will not be won with bullets alone*, was my message to him.

The year before he died my father gave me the records he had been saving from his years of making DDT. They were the only personal items he gave me. In the files were copies of requisition forms for larger pumps, maintenance schedules, performance reports, and aerial photos of the plant. When he gave me this bundle he pointed out on the aerial photos where the

large pipe led from the manufacturing facility into the Delaware River. As he described how once a week they had to stop production so a man could go into the pipe and scrape loose the waxy yellow DDT residue, I felt as though I were listening to a confession, and I tried to be as calm and compassionate as a priest in receiving it.

Why had he chosen me, out of the five, to be the recipient of this information?

The remains of both my father and Rachel Carson have been incinerated. The elements which made up their bodies have returned to the Earth and the sky to become new forms. But that waxy substance still remains in the bottom of the Delaware River and in every long-lived carnivore on the planet. Last year both my mother and my sister were diagnosed with breast cancer. Yesterday I got a letter telling me the results of my recent mammogram showed irregularities. Perhaps this has nothing to do with my father's work, but perhaps it does. Research shows that a high level of DDT in the blood of young women predicts a 5-fold increased risk of breast cancer developing later.<sup>iv</sup>

The month after my father died a local environmental group asked our state legislature to declare May 27, 2007, "Rachel Carson Day," in honor of her centennial birthday. I spoke in favor of the bill, but a portly State Senator, sounding much like my father's ghost, spoke up to extol the virtues of DDT. The skirmish for and against DDT continues. Those in favor of resuming domestic production always cite the young African children who are malaria's primary victims, but a close look at the record shows that those in speaking in favor of DDT tend not to be health care workers or social workers. Frequently they are economists.<sup>v</sup>

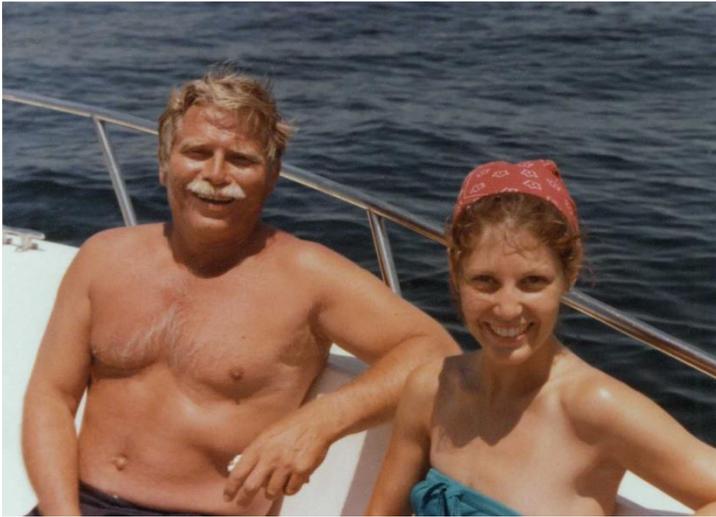
Why would economists bother with this DDT battle? Free market economists, such as the members of the Competitive Enterprise Institute, tend to be critical of environmental regulations because they are viewed as restricting the growth of industry. These are the same folks who questioned the research showing that smoking was bad for one's health. They believe that if American plants are not making as many cigarettes, or any DDT, then we are less competitive economically. Instead of admitting this reasoning, however, they have been known to cloud the argument by accusing Rachel Carson and the environmental activists who followed her of being insensitive to the needs of the communities suffering from malaria. (Those poor African children!)

Our world views couldn't be more different, my father and I: he of the Fox-News, Atlas-Shrugged, Chemical-Solution mindset. But, like him, I am a tough one: willing to work hard and stand proud for what I believe in. Carson shares that with us too. What I believe in can be summed up by Barry Commoner's first law of ecology: *Everything is connected to everything else*<sup>vi</sup>. There is one ecosphere for all living organisms and what affects one, affects all.

My father's legacy to me was a strong mind, a good education, and an almost frightening tenacity. But I will not use those gifts to support his vision of the world. I will use them instead to say that the solution to pollution is *not* dilution; we should *not* be manufacturing bioaccumulative chemicals; and cancer *prevention* is more important than a cancer cure. Rachel Carson was right.



Caption: . Plant in Marcus Hook, Pennsylvania, USA, where author's father manufactured DDT. Wing of the plane can be seen at the top of the photo.



Caption: The author and her father.



Caption: Another view of the chemical plant with the Delaware River in the foreground.

---

<sup>i</sup> The US Centers for Disease Control Agency for Toxic Substances and Disease Registry (ATSDR) agrees that there is an association of elevated DDT levels with premature births and low birth weight infants. See also *DDT linked to miscarriages*, Science News 11/13/2004. Vol. 166 Issue 20 p. 318.

<sup>ii</sup> Estimates vary widely from 800,000 to 2.7 million.

<sup>iii</sup> Barry Commoner was a well-known environmentalist who wrote books such as “The Closing Circle.” He ran for President of the United States on the Citizens Party ticket in 1980.

<sup>iv</sup> Cohn BA, Wolff MI, Cirillo PM, Sholtz RI. DDT and Breast Cancer in Young Women: New Data on the Significance of Age at Exposure. *Environmental Health Perspectives* August 2007

<sup>v</sup> Pesticide Action Network. “Who’s promoting DDT?” <http://www.panna.org/ddt/promoting>; accessed August 11, 2010.

<sup>vi</sup> Commoner, B. 1971. *The Closing Circle: Nature, Mann, and Technology*. New York: Knopf.