SANDRA STEINGRABER

Tune of the Tuna Fish

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SANDRA STEINGRABER (b. 1959) is a biologist and writer of nonfiction and poetry. Several of her books combine memoir and scientific writing about environmental issues: *Living Downstream: An Ecologist Looks at Cancer and the Environment* (1997), *Having Faith: An Ecologist's Journey to Motherhood* (2001), and *Raising Elijah: Protecting Our Children in an Age of Environmental Crisis* (2011). "Tune of the Tuna Fish" first appeared in the environmental magazine *Orion* (2006) and was later included in *Raising Elijah*.

TO COMMEMORATE MY DAUGHTER'S FIRST PIANO RECITAL last spring, my mother sent a package of old songbooks and sheet music that she had scooped from the bench of my own childhood piano, where they had undoubtedly sat for more than thirty years. Faith immediately seized on *The Red Book*, one of my very first lesson books, and began to sight-read some of the pieces. Her favorite was "Tune of the Tuna Fish" (copyright 1945), which introduces the key of F major. The cartoon drawing accompanying the song depicts a yodeling fish. The lyrics are as follows:

> Tuna fish! Tuna fish! Sing a tune of tuna fish!
> Tuna fish! Tuna fish! It's a favorite dish.
> Everybody likes it so. From New York to Kokomo.
> Tuna fish! Tuna fish! It's a favorite dish.

After we belted the song out a few times together, Faith asked, "Mama, what is a tuna fish? Have I ever eaten one?" In fact, she hadn't. Although tuna salad sandwiches were a mainstay of my own childhood diet, tuna has, during the time period between my childhood and my daughter's, become so contaminated with mercury that I choose not to buy it.

A few weeks later, at a potluck picnic, an elderly woman offered Faith a tuna salad sandwich. She loved it. On the ride home, she announced that she would like tuna sandwiches for her school lunches. She wants to eat one *every day*. I smiled that noncommittal motherly smile and said, "We'll see." She broke into song, "Everybody likes it so. From New York to Kokomo. . . ."

A month after that, Faith walked up to me with an alarmed look. Is it true, she wanted to know, that tuna fish have mercury in them? And mercury poisons children? Will she die from eating that sandwich at the picnic? I was able to reassure her that she was fine, but I was left wondering where she'd heard all this. Then I noticed that I'd left out on my office desk a copy of an article about the impact of mercury on fetal

brain growth and development. It was one that I myself had authored. Could she have seen it? At age six, can she read well enough to have figured it out?

Other than the twenty-three chromosomes that each of us parents contributes to our offspring during the moment of conception, their growing bodies are entirely made up of rearranged molecules of air, food, and water. Our children are the jet stream, the food web, and the water cycle. Whatever is in the environment is also in them. We know that this now includes hundreds of industrial pollutants. A recent study of umbilical cord blood, collected by the Red Cross from ten newborns and analyzed in two different laboratories, revealed the presence of pesticides, stain removers, wood preservatives, heavy metals, and industrial lubricants, as well as the wastes from burning coal, garbage, and gasoline. Of the 287 chemicals detected, 180 were suspected carcinogens, 217 were toxic to the brain and nervous system, and 208 have been linked to abnormal development and birth defects in lab animals.

One of these chemicals was methylmercury, the form of mercury found in fish. Its presence in umbilical cord blood is especially troubling because methylmercury has been shown to paralyze migrating fetal brain cells and halt their cell division. As a result, the architecture of the brain is subtly altered in ways that can lead to learning disabilities, delayed mental development, and shortened attention spans in later childhood. Moreover, the placenta actively pumps methylmercury into the umbilical cord, raising the concentration of mercury in fetal blood above that of the mother's own blood. Most pregnant mothers probably don't realize that when they eat tuna, the mercury within is transferred to and concentrated in the blood of their unborn babies.

Recently, I've been talking with my children about why we buy organically grown food. I've explained to Faith and her younger brother, Elijah, that I like to give my food dollars to farmers who sustain the soil, are

kind to their animals, and don't use chemicals that poison birds, fish, and toads. I add that I like to buy food that is grown right here in our own county. It tastes better and doesn't require lots of gasoline to get to our house. I haven't shared with them the results of the 2003 Seattle study, which revealed that children with conventional diets had, on average, nine times more insecticide residues in their urine than those who ate organic produce.

But there is no "organic" option for buying tuna. No mercury-free tuna exists. When mercury from coal-burning power plants rains down from the atmosphere into the world's oceans, ancient anaerobic bacteria found in marine sediments transform this heavy metal into methylmercury, which is quickly siphoned up the food chain. Because tuna is a top-of-the-food chain predator, methylmercury inexorably concentrates in the flesh of its muscle tissue. There is no special way of cleaning or cooking tuna that would lower its body burden. Nor is there any way of keeping mercury from trespassing into a child's brain, once he or she consumes the tuna. Nor is there a way of preventing those molecules of mercury from interfering with brain cell functioning. In that sense, the problem of tuna fish is more akin to the problem of air and water pollution: it is not a problem we can shop our way out of.

Recognizing the potential for methylmercury to create neurological problems in children, the U.S. Food and Drug Administration has now promulgated advisories and guidelines on how much tuna is safe for pregnant women and children—as well as nursing mothers and women who might become pregnant—to eat in a month's time. There is debate about whether these current restrictions are protective enough. But even if they are sufficient, I find them highly impractical. Children do not want to eat a food they like once a month, or even once a week. In my experience, when children discover a new food item to their liking, they want it all the time. They want it for breakfast, lunch, and dinner from here to Sunday. Children's dining habits are, for mysterious reasons, highly ritualized. Elijah, for example, consumed two avocados

a day for the better part of his second year. I vaguely recall one summer when I, at about age seven, ate liver sausage on Saltines as part of every meal.

How, then, do you explain to a young child with a tuna jones that she'll have to wait until next month before she can have her favorite dish again? Do you tell her that she's already consumed her monthly quota of a known brain poison, as determined by the federal government? Or do you make up some other excuse?

I eventually sat down with Faith and showed her the article I had written. I said that I was working hard to stop the mercury contamination of seafood so that she could someday enjoy tuna without needing to worry. I said that keeping mercury out of tuna required generating electricity in some way other than burning coal, which is why her father and I support solar energy and wind power. 10

Soon after, we went hiking in the woods near the day camp she had attended earlier in the summer. Faith summarized for me the history of the old stone building where snakes and turtles are housed in one wing and bunk beds fill the other. It was originally built, she explained, as a *pre-ven-tor-i-um*. Children whose parents were sick with tuberculosis were brought there to live so they wouldn't get sick, too. In fact, I already knew the history of the Cayuga Nature Center but was, nonetheless, amazed at my daughter's ability to recount this information. I tried to gauge whether she was worried about the idea of children being separated from their families because of disease. "You know," I said, "we don't have to worry about tuberculosis anymore. We fixed that problem." She said she knew that. That's why the building had been turned into a camp for everyone.

The top of the hill offered a view across Cayuga Lake. On the far bank floated the vaporous emissions from New York State Electric and Gas Corporation's Cayuga Plant, whose coal-burning stacks were plainly visible against an otherwise cloudless sky. It's one of the state's biggest

emitters of mercury. In the year my daughter was born, the Cayuga facility released 323 pounds of mercury into the environment. Pointing it out to Faith, I said that's where the mercury comes from that gets inside the fish. I said that I hoped one day we could fix that problem, too. She thought about it a minute and said, then they can do something else with the building.

Thinking about the Text

1. What is Sandra Steingraber's purpose in writing this essay? Why do you think she uses both anecdotes about her children and scientific information about mercury and its effects?
2. Steingraber suggests several ways of dealing with the contamination of tuna. Which potential solutions does she find inadequate, and why? What better solutions does she offer?
3. Identify a problem, then write an essay in which you show why that problem is significant, describe how others have tried to address the issue (perhaps inadequately), and then offer a solution or course of action you believe is more effective.