

Authors Attempt 'Death By Rubber Duck'



Courtesy of Counterpoint

Authors Rick Smith and Bruce Lourie

February 20, 2010

text size **A** **A**

Inspired by Morgan Spurlock's fast-food gluttony in the movie *Super Size Me*, two environmental activists from Canada devised their own experiment. Instead of fast food, Rick Smith and Bruce Lourie absorbed themselves in everyday products like shampoos, soaps and cleaners to find out what kind of damage might be done to their health.

Their book about the adventure is called *Slow Death by Rubber Duck: The Secret Danger of Everyday Things*. Smith tells Guy Raz that writing the book was like conducting an adult science fa

project — with one cardinal rule.

"Our experiments had to mimic everyday life," Smith says. "Obviously it would be very easy to dramatically increase your Teflon levels if you were willing to drink some Teflon, but nobody does that so it wouldn't have any applicability to daily life."

But Smith and Lourie didn't need to take baths in mercury or eat tuna for a whole year to see the chemical levels in their bodies skyrocket. After just two days of eating only canned food microwaved in plastic containers and drinking from one of his son's old baby bottles, Smith saw a major rise in the levels of BPA in his body.

"My levels increased over eight times," he says. "You can only imagine what the levels in an infant would look like if after two or three years of their sole source of nutrition being a BPA baby bottle. The levels would just be through the roof."

Smith says children are especially vulnerable to chemicals such as BPA.

"As the bodies of children are developing, their cells are dividing. Their brains and their organs are growing. All of these processes in childhood and development are hormonally driven, and so the introduction of even a very small amount of a hormonally active chemical into the body of a child can have very large effects, disproportionate to the actual amount of chemical we're talking about," he says.

To take stock of the chemical threat for his kids, Smith looked at a typical day at home to see what types of chemicals they were exposed to. In just about every room he came across phthalates, which a chemical usually used in flame retardants, but also one Smith found in his kid's pajamas, shampoos soaps and even their rubber duck.

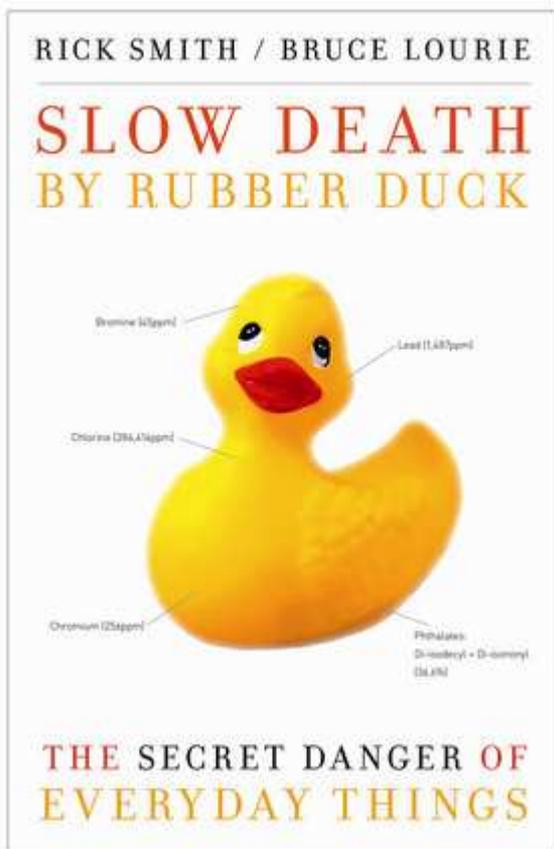
Smith admits it is pretty much impossible to avoid all the chemicals mentioned in his book — but that doesn't mean we should bury our heads in the sand.

"The positive story of what we saw during our experimentation is that levels of pollution in our bodies responded to predictable things. So when we used a brand of shampoo that contained phthalates, there was a measurable increase in phthalates. But when we used a brand that didn't contain phthalates, those levels came down," he says.

"The good news here is that in a relatively short period of time, if people are a little bit careful about what they buy, if they are a little bit better about reading labels, accessing some of the amazing information that's on the Web these days, they can dramatically lower their levels of these pollutants - even in the absence, at the moment, of adequate government regulation."

Excerpt: 'Slow Death by Rubber Duck'

RICK SMITH and BRUCE LOURIE



Seven: Risky Business: 2,4-D and the Sound of Science

[In which Bruce ponders pervasive pesticides]

A lawn is nature under totalitarian rule.

—Michael Pollan

Healthy green lawns are lovely to look at and great to lie on. It's no wonder they're the object of envy in the famous saying "The grass is always greener on the other side." I have vivid memories of mowing, watering, fertilizing and chemically treating my family's lawn as a teenager. There was great satisfaction in seeing a freshly cut, weedless, green lawn with clean diagonal mow tracks. And maybe even some pride in having people think that the grass truly was greener on our side of the fence.

Green lawns require work. They are a sign of care and dedication and, in some contexts, they're even evidence of being a good neighbour. But w

Slow Death By Rubber Duck
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have to ask ourselves, "What are our priorities?" Are weed-free lawns worth the risk of children suffering from respiratory disease? Or lawn-care workers getting non-Hodgkin's lymphoma? Or future generations of kids suffering from learning disabilities? I don't think anybody using lawn-care products wants any of that. In fact, most of us are unaware of the potential dangers of pesticides.

The truth of the matter is that lawns are giant pesticide guzzlers. They consume 90 million pounds of pesticides and herbicides each year in the United States. In a strange coincidence this is also the amount of chicken wings consumed by Americans on Super Bowl weekend, and though the toxicity of chicken wings may be open to debate, pesticides are definitely poison. That's the whole point. They kill pests. Insecticides kill bugs and herbicides kill weeds. Lawn and garden fertilizers that control weeds, known as "weed and feed" products, contain the chemical 2,4-D, the most widely used herbicide in the world.

"DDT Is Good for Me-e-e!"

Most sayings have ancient roots, but "The grass is always greener on the other side of the fence" is strangely contemporary. Its first recorded use was in 1957. This also happens to be the year that DDT spraying near waterways was banned by the U.S. Forest Service. And it's the same year that the *New York Times* reported on the failed attempt of Nassau County, New York, to ban DDT. This story, in turn led to the editor of the *New Yorker* convincing Rachel Carson to begin writing *Silent Spring*, her pioneering work on the damaging effects of pesticide spraying. The late 1950s were the heyday of DDT in North America, with total use peaking in 1959. These may all be strange coincidences. But is it possible that chemical companies, seeing the demise of DDT and the future of 2,4-D, invented the expression "The grass is greener..."? Or does this sound like pesticide paranoia?

Extensive pesticide use had begun not that many years before — after the end of World War II, which had brought large-scale chemical pesticide manufacturing to the United States. Mosquito-borne diseases, mainly malaria and typhus, were wreaking havoc on the troops in southern Europe, northern Africa and Asia. The military was eager to find a solution. Synthetic pesticides were not in wide use, or even well understood, for that matter, and DDT did not even exist prior to World War II. But between 1943 and 1944, military demand for DDT shot up from 10,000 pounds a month to 1.7 million pounds a month. Desperate for DDT the U.S. government provided 100 per cent tax write-offs on the construction of DDT-manufacturing plants and forced Geigy, the DDT patent owner, to give DuPont a licence to produce DDT, even permitting sales after the conclusion of the war.

After the war American companies were left with huge DDT production capabilities but no market. Manufacturers were well aware of the economic potential for DDT, and in some ways they viewed the demand for the chemical during the war as simply a means for them to develop government-subsidized production capacity. Despite concerns raised by scientists, DDT became an overnight sensation, and American farming rapidly shifted to the chemical-input model of today. DDT was also used to eradicate garden pests and houseflies, and its huge success led to the invention of all kinds of synthetic chemicals for killing bugs and weeds. Chlordane, dieldrin and aldrin are three chemical relatives of DDT created in the 1940s to target various insects, such as termites, moths and grasshoppers. The patent for 2,4-D was issued in 1945. As one of the world's first "hormone herbicides," 2,4-D "laid the corner stone of present-day weed science."

Though synthetic pesticides were the talk of the town and part of the postwar utopian view of a world with plentiful food and no disease, the potential perils of DDT use were recognized early on. Scientists began to express concern regarding the human health and biological hazards of the chemical in the mid-1940s, calling DDT "the atomic bomb of the insect world" with "possibilities for evil as well as what seems to the human race good." As far back as 1949, the U.S. Food and Drug Administration Commissioner, Paul B. Dunbar, was worried that people exposed to small amounts of DDT and other chemicals over long periods of time might have been in greater jeopardy than soldiers who were briefly exposed — an early recognition of risks to the general population of ongoing exposure.

Military applications occurred in a risk context that was very different from that of the new users of DDT including American farmers and housewives. Compared with malaria, mustard gas or a bomb, the long-term health hazards of DDT were hardly a consideration. But when the threats were houseflies, gypsy moths or corn weevils, widespread DDT use in homes and on the nation's food supply was open to question. The manufacturers of DDT went to great lengths to sell the benefits of DDT to the American public, as witnessed by the 1947 *Time* advertisement "DDT is Good for Me-e-e!" Creating "meatier" beef, "healthier" homes and apples with no "unsightly worms," DDT was proffered as the solution to many problems. But by 1949 the bloom was coming off the rose. All of a sudden DDT began to lose some of its insecticidal effect. Mosquitoes became resistant and required ten times the dose before

they would die. And as its intended victims became more immune to its killing power, the impact on DDT's unintended victims became impossible to deny.

For a "miracle" product, DDT's days were short lived. In 1972, less than 30 years after its first commercial application, all uses of DDT were banned in the United States and in many other countries. Two years later the U.S. banned the use of DDT's toxic cousins aldrin and dieldrin. Unused, yes. Gone, no. Decades later DDT still exists at measurable levels in the environment, and its persistence ensures that its toxic legacy will continue for the foreseeable future. (DDT use continues in countries where malaria is prevalent.)

According to a 2008 study, men with DDE, a byproduct of DDT, in their bodies are 1.7 times more likely than those without DDE to develop testicular cancer. New studies show that DDT compounds contribute to breast cancer development by blocking the actions of natural hormones that slow down the growth of cancerous tumours. It seems incredible that DDT was used widely in North America for only three decades but can still be causing cancer nearly 40 years after it was banned. This is a powerful lesson in the dangers of highly persistent toxic substances. As DDT's fortunes waned, those 2,4-D waxed.

2,4-D, short for 2,4 dichlorophenoxyacetic acid, is a synthetic chemical herbicide. More importantly, it is one of the earliest "hormone herbicides." Working its magic by disrupting a number of hormone processes in plants, 2,4-D causes them to grow uncontrollably and keel over dead. It was designed primarily to kill broadleaf weeds (think dandelions), weedy trees and aquatic weeds (seaweed that gets in the way of oyster farming, for example). It is especially valued because it kills selectively, targeting flowering plants and trees but sparing grasses and their relatives. That is why we can spread 2,4-D all over our lawn and kill the weeds but not the grass. The popularity of this chemical among farmers stemmed from the fact that corn, grains and rice are in the grass family, making 2,4-D the perfect chemical to kill weeds and plants that grow between rows of these crops.

Like many pesticides 2,4-D is associated with a number of potentially serious health hazards for humans. In fact, the list of known or suspected health effects reads like an inventory of the worst possible things that could happen to a human. And I'm not even referring to things like the nausea, headaches, vomiting, eye irritation, difficulty breathing and lack of coordination that can occur from accidentally spilling 2,4-D on your skin. I'm referring to the long-term effects of exposure to 2,4-D: non-Hodgkin's lymphoma (a form of blood cancer), neurological impairment, asthma, immune system suppression, reproductive problems and birth defects.

This pesticide also has special notoriety because it was one of the active ingredients in Agent Orange, the chemical spray used in the Vietnam War to clear jungle foliage. Agent Orange, which also contains a number of even deadlier ingredients, is at the centre of ongoing medical and legal battles initiated by soldiers seeking compensation for the cancers and other ailments they attribute to their wartime exposure.

Given all these deleterious side effects, Rick and I weren't enthused at the prospect of experimenting with 2,4-D, but low-level, short-term exposure is at least less damaging than long-term exposure. So I thought long and hard about the best experiment to increase, and then measure, 2,4-D in my blood. An obvious test was for me to spray some 2,4-D-laced herbicide on somebody's lawn and measure the 2,4-D in my blood before, during and after the spraying. Remarkably, had we been writing this book a year earlier, this would have been a fairly simple activity to organize. When we first started to plan our chemical exposure experiments, we knew we could not do the 2,4-D test in Toronto, where we live, because the city had banned the cosmetic use of pesticides starting in April 2004. Even so, and even

though there are nearly two hundred municipal bylaws in Canada banning pesticide use, we figured we could still find a few pesticide-friendly municipalities nearby. This, of course, raised ethical issues about deliberately poisoning someone else's yard so we could contaminate ourselves.

Just as we started laying our plans, amazingly, the Government of Ontario decided to ban the cosmetic use of lawn herbicides and pesticides throughout the province. So our test was about to become illegal in Ontario! We figured we could still have squeaked in under the wire and found a location near Toronto, but something didn't feel quite right about going to the suburbs to spray a toxic chemical on someone's lawn when we knew the chemical was about to be banned there.

In the end we decided against trying to measure an increase in my 2,4-D levels. Instead, we did a one time test for a variety of pesticides in my blood — the same testing that Environmental Defence conducted on Canadian families in 2007 as part of the Toxic Nation study, which helped bring the issue of toxic chemicals to the forefront of public consciousness in Canada. Because about 50 per cent of my diet is organic, and it's been shown that people with organic diets, especially children, have lower pesticide levels in their bodies, I assumed that my results would be pretty clean.

There was good news and bad news as it turned out.

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comments

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Recent First



Amy Lee (PureHabitat) wrote:

I think of all the people that still think the government regulates the chemicals that enter the market. There are tens of thousands of chemicals that enter the market every year that are not tested for safety. We need books like this to raise awareness. This experiment did a great job at raising awareness, and I congratulate them for this. Even though it does leave many unanswered questions.

So what do we do? It is hard to write about issues surrounding chemical toxicity, because it touches on issues of our health and this in turn creates fear. Yet, there are many things that we can do to avoid these chemicals. Avoid plastic, eat fresh fruit and vegetables, use organic cleaning products...I would rather make simple changes to my life then wait for this argument to be over.

February-24-10 12:16:46 AM

[Recommend \(3\)](#)

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Mary Froemke (maryif) wrote:

Jack de Golia (JackDillon)- I found your comments unfortunate. The chemicals Smith & Lourie demonstrated alarming rates of absorption of have been well researched & proven to be damaging. This is not disputed. It should be considered no different than someone physically assaulting you. Your person has been assaulted on a cellular level decreasing your body's ability to perform many normal functions such as ward off disease, pass on preferable DNA & healthy genes to your offspring, or have offspring at all.

"Do they have any of the diseases they say come from the chemicals they found in their blood?" If you had read the book, done any contextual fact checking or research of your own, you might have understood that the diseases "caused" by these toxins are more specifically a result of your body succumbing to cumulative cellular & systemic damage caused by the toxins, not simply the presence of the toxins themselves - more exposure = more damage. More damage = more disease.

February-23-10 5:32:04 PM

[Recommend \(4\)](#)

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darla kernell (darlakernell) wrote:

WOW! I found the book to be interesting and alarming. Chemicals in products have personally affected myself and my children. Everyday, it seems, there is another story about toxic chemicals harming human health and the environment. Unfortunately, there is little as individuals that we can do to prevent our families from being exposed. The loose federal law that regulates chemicals (1976) is responsible for an entire population of polluted people. The law is considered the weakest of all major environmental laws on the books today. It is so toothless that the EPA was unable to ban asbestos, which, by the way, is responsible for 10,000 deaths a year. We need a fundamental reform in the way we regulate chemicals. Companies need to be required to inform the public on the packaging of the products we purchase of the toxic chemicals we are buying before they are on the market. We deserve a choice. Under current law, over 80,000 chemicals are allowed onto the market with little to no testing. As a result, babies are being polluted with hundreds of industrial chemicals. While still in the womb. A reality I discovered standing next to my child in a hospital bed on and off for over a year.

February-22-10 6:27:41 PM

[Recommend \(6\)](#)

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natalya buckel (tally) wrote:

Anyone is interested in more information about consumer safety should check out the Environmental Working Group's site ewg.org. As an independent group of researchers they release helpful consumer guides every year. My favorite is the sunscreen analysis but you can also read more about what cell phones have lower radiation levels, what plastics you should use sparingly (and never microwave), etc.

I agree that the FDA is a joke and can't be bothered to act concerned about some of these issues, though there may be hope yet. I think at the very least companies should be required to provide information on BPA content, etc on consumer products so that we have the choice to make ourselves. As a young woman who hopes to have children soon I do worry about some of these potentially dangerous ingredients but as the interview points out - they are almost impossible to completely avoid.

February-22-10 3:00:02 PM

[Recommend \(7\)](#)

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R W (workshop) wrote:

I'm mystified by the mocking comments. It's as if there's something wrong with protecting your own health, and wanting to know what's in your food or in the products we think we can depend on.

What doubt is there that products contain unhealthful substances, with the recent spate of contaminated products from China? This has been going on for a long time... lead in paint, mercury in thermometers, arsenic, asbestos, DDT... and all of these substances were thought to be innocuous or their hazards minimized.

The complacency and the almost snide skepticism that greets this kind of information is odd indeed. Our complacency is a signal to manufacturers that it's OK to market shoddy quality and dangerous products.

February-21-10 9:21:51 PM

[Recommend \(19\)](#)

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T C (razmatazz) wrote:

I agree with Francesca. We forget that one part of the scientific process is observation and communication. There are plenty of primary literature sources available on the effects of phthalates (a web of science search for phthalate AND endocrine yields ~500 results), but scientists are notoriously bad at communicating with the public. These guys have put this issue in the context of our daily lives. I'm not saying we should base public policy off of this, far from it, but hopefully it has given some citizens a spark of interest in a topic that would otherwise continue to be ignored. It is a bit alarmist, but then again who would read a book called hang-nail by rubber duck?

February-21-10 3:39:18 PM

[Recommend \(6\)](#)

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Francesca Ferraro (ferraro) wrote:

To all of you who are complaining that the story was not as thorough as you would have liked, might I suggest you read the book? What do you expect from a 6 min radio news story? You might be surprised to discover all the VOCs (Volatile Organic Compounds) and nasty chemicals we surround ourselves with unwittingly. Any story that raises the public's awareness of the hazardous chemicals so thoughtlessly used in our daily lives is good as far as I'm concerned. There is a reason that the one in two Americans get cancer (according to the CDC and the Department of Health and Human Services). I swear, some commentators just complain for the sake of complaining.

February-21-10 2:35:39 PM

[Recommend \(12\)](#)

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Jack de Golia (JackDillon) wrote:

Like a lot of science fair projects this one leaves the observer wondering, "so what?" These two authors found pollutants in their blood. So are they sick now? Do they have any of the diseases they say come from the chemicals they found in their blood? And does the hazard abate as quickly as they claim? Did they prove anything beyond that they ingested stuff they thought they might ingest? Answer: no. They then make leaps of faith to say, see, we're in peril. And, see: the government is failing. None of that, while I might agree, is supported by their "research." This kind of amateurish pseudoscience undercuts legitimate research and legitimate efforts to clean up our environment. All their work seems to prove is that anybody can write a book, but that doesn't necessarily make them an expert.

February-21-10 12:22:55 PM

[Recommend \(7\)](#)

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C Early (FSMdisciple) wrote:

Wow - what a piece of pseudoscientific blather! I wonder what these two bright guys think their bodies are made of. If this is what passes for 'science for the masses', then we are in very deep trouble indeed. The scientific literacy of the American public never has been very good, and is falling fast. Whoever wrote this is perfectly qualified to do the same for infomercials that fill the off hours on TV, hawking amazing remedies for fake entities like "cellulite".

February-21-10 12:01:05 PM

[Recommend \(4\)](#)

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Paul Londrville (athenodorus) wrote:

What kind of weird and unpredictable synergies arise from combinations of these contaminants- DDT plus phthalates, BPA plus mercury, etc? Singularly bad, how are we to evaluate the toxicity of all the myriad combinations?

February-21-10 9:31:45 AM

[Recommend \(9\)](#)

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