Op-Ed

Swimming Upstream: Probing the Problem of Pollution

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THERE WAS A TIME WHEN *IF* WE WORRIED ABOUT THE DANGERS posed by toxins such as lead, cadmium, mercury, or asbestos, we focused on industrial workers. They, not us, were the ones at risk from the new products produced in our growing industrial plants. During the 1950s, many saw factory smokestacks as symbols of our nation's growing economic power and social progress.

The average citizen had little fear of the chemicals, plastics, and electrical products in the new, gleaming kitchens, bedrooms, and living rooms of the suburban communities of postwar America. Lead poisoning was a worker's problem, and asbestosis was a curiosity.¹ The plastics coating our dining tables, the vinyl siding on our homes, the asbestos in the tiles above our heads and on the pipes in our basements, and the synthetic nylons in everything we wore represented the fruits of the new American century. "Progress" was "our most important product," claimed General Electric. DuPont boasted of "better living through chemistry."

Those halcyon days faded when Rachel Carson raised the specter of environmental damage from DDT in her 1962 bestseller *Silent Spring*.² By the late 1960s and early 1970s, oil spills in Santa Barbara, fish kills along the Hudson River, and the fire *on*, not *along*, the Cuyahoga River in Cleveland brought home the darker side of a century of unrestrained industrial "progress." In the late 1970s and early 1980s, Americans learned about buried barrels of chemicals destroying the neighborhood of Love Canal; the out-of-control reactor at Three Mile Island threatening a nuclear meltdown; and the abandonment of the entire town of Times Beach, Missouri, because of PCB pollution on its streets. Internationally, we watched in horror as a Union Carbide plant in distant Bhopal, India, killed thousands and destroyed the health of thousands of others.

Today, these disasters seem almost quaint. In the years since then, we have seen nuclear disasters at Chernobyl, millions of gallons of oil spilled into the Gulf of Mexico; and the Fukushima debacle, all of which made entire regions of modern industrial nations uninhabitable. Now it isn't "just" birds, workers, or poorer communities that are endangered; it is the entire planet.

Our bodies have been compromised, as well, by a century of industrial pollution. We all are unwitting subjects in a huge observational study. Since 1999, the Centers for Disease Control and Prevention (CDC) has been monitoring our bodies for 212 chemicals, detailing the variety of pollutants stored in our bones, muscle, blood, and fat.³ We do not know exactly what they are looking for because we don't know the long-term effects of these chemicals; nor do we have any clue to what the synergistic effects might be of combining so many novel materials in unknown quantities on complex biological systems.

The first iteration of this study was conducted between 1999 and 2000 and has been updated 4 times since. The latest version published last summer is a lexicon of names only a chemist could love. It has added 75 new chemicals, including phthalates, 29 volatile organic compounds, 4 environmental phenols, 4 disinfection biproducts, 3 "non-dioxin like" PCBs, and 12 perfluorinated compounds to an already imposing number of toxins. Of course, lead, manganese, mercury, and the other heavy metal poisonings are among the older ones. But the latest report shows that our bodies are a chemical soup of new synthetics to which evolution could not possibly have adapted us. Alarming, acute poisonings like lead encephalopathy and chronic diseases, such as asbestosis, are no longer the primary concerns. Now we must worry about subtle biological changes to our endocrine systems, our neurological development, and other changes that we have not yet named as diseases.

The modern home is no longer a haven; it is a threatening symbol of our own follies. Formaldehyde, a colorless chemical long used by morticians to preserve dead bodies, is also a fungicide, germicide, and disinfectant used in plywood, particle board, hardwood paneling, and the "medium-density fiberboard" used for drawers, cabinets, and furniture tops. We know that formaldehyde evaporates into a known carcinogenic vapor. Yet the National Cancer Institute at the National Institutes of Health blandly suggests that homeowners "purchasing [such products] . . . should ask about the formaldehyde content of these products."

What's inside our walls might be even more dangerous. Flame retardants, such as polybrominated diphenyl ethers, or PBDEs, commonly used in sofas, chairs, carpets, love seats, curtains, baby products, and even televisions, sounded like a good idea when they were widely used in the 1970s. They turned out, however, to be linked to thyroid disruption, memory and learning problems, delayed mental and physical problems, lowered IQ, and the early onset of puberty. Other flame retardants, like Tris (1,3-dichloro-2-propyl) phosphate, have been linked to cancer. The CDC has documented the accumulation of such chemicals in the bodies and blood of "nearly all" of us.

Nor are these particular chemicals anomalies. Lurking under most kitchen sinks are window cleaners and spot removers containing known or suspected cancer-causing agents. The same can be said of cosmetics in your makeup case, plastic water bottles, and microwavable food containers. Most recently, bisphenyl a (BPA), the synthetic chemical used in plastic products such as baby bottles, epoxy cements, tuna fish can linings, and credit card receipts, has been singled out as another everyday toxin found inside all of us with effects that are as varied as they are distressing. As Sarah Vogel of the Environmental Defense Fund wrote, "New research on very-low-dose exposure to BPA suggests an association with diverse health effects, including breast and prostate cancer, obesity, neurobehavioral problems, and reproductive abnormalities."⁴

The petrochemical, plastics, and rubber industries producing these toxins argue that until we can definitively prove that these chemicals are dangerous, we have no "right," and they have no obligation, to remove them from our homes and workplaces. The idea that they should prove their products are safe *before* exposing the entire population to them seems to be a foreign concept.

In the 1920s, the oil industry argued that until the lead in gasoline had been proved to be dangerous to consumers—even though it was already known that it was dangerous to workers—the government had no right to demand its removal.⁵ This led to 60 years of environmental pollution that we're still coping with. We continue to ignore history as we watch and wait until the damage has been done before we act. Toxic dumps used to be Superfund sites or nuclear waste disposal sites. Increasingly, however, *all* of us are toxic dumps, with no Superfund or disposal plan in sight. We have become walking, talking biohazards, and we don't even know it.

References

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