

Arsenic and Old Spaces

By Sandra Steingraber

My three-year-old daughter, Faith, will not be attending her nursery school next year even though the teachers are wonderful and the location idyllic.

The reason is arsenic.

The playground at the Ellis Hollow Nursery School, like so many other schools in Tompkins County, contains a large wooden play structure. It is beautifully designed: its tunnels, towers, bridges, and ramps wind gracefully through a shady grove behind the school.

And, like the vast majority of other wooden play structures in the country and across the United States, it is constructed from pressure-treated lumber.

“Pressure-treated” means that the wood has been injected, under high pressure, with a solution of chromated copper arsenate (CCA). The arsenic serves as a powerful pesticide, preventing rot and insect damage.

The problem is that arsenic, a known carcinogen, does not stay put. It migrates to the surface of the wood where it can easily stick to children’s hands and, from there, enter their mouths. It also leaches into the surrounding soil, where it poses a threat to groundwater.

Recognizing these hazards, the U.S. Environmental Protection Agency (EPA) decided last February to begin a phase-out of CCA wood. As of 2004, objects intended for outdoor residential use from decks to swing sets—will no longer be manufactured from wood treated with CCA.

Prompted by an *Ithaca Journal* article that reported on this phase-out, a group of concerned parents at the Ellis Hollow Nursery School decided to test our playground for arsenic contamination. Following standard protocols, we submitted to a certified lab swipe samples of the structure itself as well as soil and mulch samples from the bedding underneath and beside the structure.

The results were disquieting. All of the swipes of the playground equipment came back positive for arsenic, as did all

of the soil samples. In all cases, the levels of arsenic greatly exceeded the naturally occurring background—as well as the clean-up standard to which industrial sites in the state of New York are expected to attain. For example, one soil sample near the slide contained 101 parts per million of arsenic. The clean-up standard for arsenic in soil in the state of New York is 7.5 parts per million.



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Much has happened since we first received our lab results. New research reveals that arsenic causes more than just cancer. In low doses, it has been linked to increased risk of stroke and diabetes. It also interferes with a family of hormone called glucocorticoids, which makes our children more vulnerable to the toxic effects of subsequent chemical exposures. There is now thought to be no safe level of arsenic exposure in children.

Meanwhile, class action suits against the lumber industry are pending in several states. City commissioners in Gainesville, Florida have voted to clear all playgrounds of CCA wood. CCA play structures have been torn down in Rochester, New York. And a bill (A10221) has been [passed in New York state that] ban[s] CCA wood for all future use in playgrounds and require[s] sealing and soil clean-up at pre-existing structures.

The federal government, on the other hand, has not moved so swiftly. Even while phasing out future construction of CCA playgrounds, the EPA has stopped short of requiring remediation of pre-existing play structures like ours in Ellis Hollow. Until it can complete its new risk assessment, it simply advises washing hands after play and avoiding food contact with surfaces.

Given these conflicting messages, it is little wonder that the families at our little nursery school are now divided over this issue. Some believe that the risk of arsenic exposure is negligible. They want their children to have free access to the play structure. Others, unwilling to wait for more proof of harm, have prohibited their children from even touching it. Some will breathe easier when the structure is coated with sealant and the mulch replaced which

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The Terrible Three: Hazardous Wood Preservatives in Brief Pentachlorophenol (Penta), Chromated Copper Arsenate (CCA), and Creosote

Hazardous wood preservatives are pervasive in the environment because they are so widely used and have long residual lives. While their individual uses vary, collectively wood preservatives account the largest volume of pesticide use, with the exception of chlorine disinfectants. Given their toxicity and known cancer-causing, teratogenic (birth defect) and neurotoxic properties, pentachlorophenol, chromated copper arsenate (CCA) and creosote represent a major threat to public health and the environment and are the subject of litigation in *Beyond Pesticides et al. v. Christine T. Whitman, Administrator*, EPA, U.S. District Court, District of Columbia, 2002 (see article on page 13)



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Pentachlorophenol, also known as penta, is a chlorinated aromatic hydrocarbon, the vast majority of remaining use being the treatment of utility poles. Commercial grade penta also contains dioxins. Dioxins, produced inadvertently as a by-product in the production process, are some of the most deadly chemicals known to humankind. They are included under the byproducts section of the Persistent Organic Pollutant Treaty (POPs) signed in May 2001 in Stockholm Sweden. POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wild-

life. Penta is known to cause acute and chronic health effects including, organ damage, neurotoxicity, birth defects, immune suppression, and cancer among others.

Chromated Copper Arsenate (CCA) is a mixture of (as the name implies) copper, chromium, and arsenic. Arsenic and hexavalent chromium (one of the forms of chromium in CCA) are both considered by EPA to be Group A Known Human Carcinogens. CCA has garnered much press for its use in treating decks and play sets as well as a variety of industrial uses. The arsenic and chromium leach out of new and old

structures into soil and are available to be transferred on to the skin of children and adults who touch the structures. The leaching of these chemicals also poses a threat of leaching into the environment from industrial uses.

Creosote is an oily chemical mostly used to treat railroad ties. The chemical composition can combine as many as 10,000 chemicals; only about 300 have been identified. Creosote is known to affect skin and lungs, as well as cause birth defects and cancer. Creosote also contains chemicals known to be endocrine disruptors. The chemicals in creosote can bioaccumulate (increase in concentration as they go up the ecological food chain) through plants and aquatic animals.

is the current plan for remediation. Others are enrolling their children elsewhere.

I am in the last camp. A bladder cancer survivor myself, I cannot bear to watch my daughter climb around on a playground coated with bladder carcinogens. The risk to me is neither hypothetical nor remote. And while sealing the equipment will admittedly reduce her exposures (by 60-95 percent), it will not eliminate them entirely.

Furthermore, sealing does nothing to stop leaching from underground posts into soil and groundwater. Arsenic is a metal, and, as such, is absolutely persistent. As an ecologist, I am trying to teach my children to be mindful of future generations. Perhaps this playground will, in some later time,

become someone's garden.

Ithaca has many arsenic-treated playgrounds. It is time we had a public discussion about what to do with them. Poisoning our children and poisoning the land should not be a consequence of childhood play.

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