

Asbestos, USA:

A little town once thrived as the asbestos capital of the world — now it grapples  
with the waste that was left behind

by

Gina Vitale

B.A. Chemistry  
Drexel University, 2018

Submitted to the Program of Comparative Media Studies/Writing in Partial Fulfillment of the  
Requirements for the Degree of Master of Science in Science Writing at the Massachusetts  
Institute of Technology

September 2019

© 2019 Gina Vitale. All rights reserved.

The author hereby grants to MIT permission to reproduce and to distribute publicly paper and  
electronic copies of this thesis document in whole or in part in any medium now known or  
hereafter created.

Signature of Author: **Signature redacted**

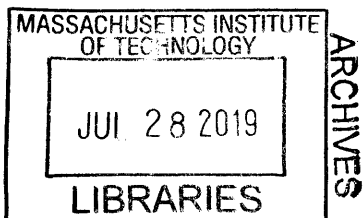
Program in Comparative Media Studies/Writing  
May 21, 2019

Certified by: **Signature redacted**

Toby Lester  
Thesis Supervisor

Accepted by: **Signature redacted**

Thomas Levenson  
Associate Professor of Science Writing  
Director, Graduate Program in Science Writing



Asbestos, USA:

A little town once thrived as the asbestos capital of the world — now it grapples  
with the waste that was left behind

by

Gina Vitale

B.A. Chemistry  
Drexel University, 2018

Submitted to the Program of Comparative Media Studies/Writing in Partial Fulfillment of the  
Requirements for the Degree of Master of Science in Science Writing at the Massachusetts  
Institute of Technology

ABSTRACT

Ambler, Pennsylvania, a small town in the suburbs of Philadelphia, was formerly known as the asbestos capital of the world. After production ceased, large amounts of waste were left behind. Once portion of that waste, now known as the BoRit site, wasn't named as an EPA Superfund site until 2009. What follows is an examination of how the site was remediated, and the whether or not the safety of the animals and the resident is still in any jeopardy from the asbestos that remains underground.

Thesis Supervisor: Toby Lester  
Title: Thesis Advisor

## Acknowledgements

I would like to thank my thesis advisor, Toby Lester, for his insightful edits and, more importantly, his consistent warmth and encouragement.

I'd like to thank my family, for the late night videochats, the unfaltering support, and the love that came through clearly from 300 miles away.

Many thanks to the wonderful teachers who have taught me so much — and thanks to my seven amazing classmates, who have taught me the most.

I thank the Philadelphia Eagles, *Law and Order: Special Victims Unit*'s Ice-T, my grandmother's knitting needles, and my trusty electric blanket, for helping me stay sane through a year that held unprecedented challenges.

Thanks, finally, to the residents of Ambler.

## Asbestos, USA:

A little town once thrived as the asbestos capital of the world — now it grapples with the waste that was left behind

A few notable events took place in 1881. Clara Barton founded the American Red Cross. Billy the Kid escaped from a jail in New Mexico. A disgruntled lawyer shot U.S. President James Garfield in the back, and it took him 79 days to die.<sup>1</sup>

Less famously, two guys who sold headache medicine in Philadelphia decided to sell it somewhere else. They carted their operation to a little town about 45 minutes outside the city. In 1881, it was just called Wissahickon, after the creek that ran through it. Seven years later, it was re-named to honor a woman who hauled medical supplies to the scene of the Great Train Wreck of 1856. The woman's last name was Ambler.<sup>2</sup>

Somewhere in the early to mid-1880s, one of the two headache medicine men, Dr. Richard V. Mattison, made a discovery for<sup>3</sup> which we are still paying the price.

“Look at this,” Mattison might have called to his business partner, Henry G. Keasbey, while

---

1. "Historical Events in 1881." OnThisDay.com. Accessed May 16, 2019. <https://www.ontthisday.com/events/date/1881>.

2. "Ambler History." Ambler Main Street Header Image. Accessed May 16, 2019. <http://amblermainstreet.org/ambler-history/>.

3. "Nicolet (Keasbey & Mattison) - History and Asbestos Litigation." Mesothelioma Center - Vital Services for Cancer Patients & Families. Accessed May 16, 2019. <https://www.asbestos.com/companies/nicolet-keasbey-mattison/>.

staring at a vial in a makeshift laboratory.

“What is it?” Keasbey might have answered, walking to Mattison’s side.

“Milk of magnesia — the laxative. I mixed it with asbestos mineral.”

“Why?”

“I think we can use this to insulate pipes.”

“We don’t sell insulation,” Keasbey might have pointed out.

To which, perhaps Mattison answered, “Maybe we should.”

In 1886, the company Keasbey & Mattison, later known as K&M, left headache medicine behind. They turned instead to construction, where asbestos had many uses. In homes, it was used in ceiling tiles, roofing shingles and insulation.<sup>4</sup> Later on, in cars, it was in brake pads and clutches. It was in blankets and firemen suits. It was in cosmetics and kitty litter. It was in cigarette filters<sup>5</sup> — drawn into the lungs with every puff.

You might be shaking your head, because you know that asbestos is bad. Most people do. In the

---

4. Britannica, The Editors of Encyclopaedia. "Asbestos." Encyclopædia Britannica. March 06, 2019. Accessed May 16, 2019. <https://www.britannica.com/science/asbestos-mineral>.

5. "Asbestos Products & Materials - Products Containing Asbestos." Mesothelioma Center - Vital Services for Cancer Patients & Families. Accessed May 16, 2019. <https://www.asbestos.com/products/>.

1970s, that knowledge became widespread — that’s when the EPA passed the Clean Air Act, which banned most spray-applied products that used asbestos for insulation or fireproofing.<sup>6</sup> But even in the years since, asbestos products have never been entirely banned in the United States. Most uses still aren’t banned.<sup>7</sup>

Again, perhaps, you’re shaking your head. I certainly did, when I first read that. *Asbestos?* I thought. *Legal? But it’s dangerous.* I didn’t know exactly why it was dangerous, just that it was. I recalled the commercials for class action mesothelioma lawsuits that popped up between episodes of *M\*A\*S\*H* on the retro TV channels. I recalled the excavation notice posted on the door of a science building on my undergraduate campus. But the intricacies of the threat were unknown to me.

Asbestos is just a mineral. Or, more accurately, a group of minerals that have certain properties in common. They come in a range of colors, but the one that’s used in most products — and the one that most people visualize when they hear the word — is the white one. It presents as wispy, spider-web like strands stretching over the surfaces beneath it.<sup>8</sup> In nature, it can be found in mountain ranges and clusters of rocks.<sup>9</sup> Now, thanks to us, it’s in shingles, attics, and anywhere else. And when the fibers dislodge, wiggling out in tiny pieces of fluffy pink insulation or some other product, they go straight into the air, too small to even see. And when we take that air into

---

6. Leer, Ben. "Why Isn't Asbestos Banned in the United States?" Mesothelioma Center - Vital Services for Cancer Patients & Families. November 20, 2018. Accessed May 16, 2019. <https://www.asbestos.com/blog/2012/09/17/why-isnt-asbestos-banned-in-the-united-states/>.

7. "Learn About Asbestos." EPA. September 17, 2018. Accessed May 16, 2019. <https://www.epa.gov/asbestos/learn-about-asbestos>.

8. "Types of Asbestos - Chrysotile, Actinolite, Tremolite & More." Mesothelioma Center - Vital Services for Cancer Patients & Families. Accessed May 16, 2019. <https://www.asbestos.com/asbestos/types/>.

9. "Asbestos Exposure Risks by State." Mesothelioma Center - Vital Services for Cancer Patients & Families. Accessed May 16, 2019. <https://www.asbestos.com/states/>.

our lungs, we take those fibers with it.

Those tiny splinters then wedge into the lining of the lungs. They fester there for decades, until cancer cells begin to grow, spreading over the organ like rust around wet metal.<sup>10</sup> This cancer is called mesothelioma. About 75 percent of cases occur in the lungs, but it can also occur in the lining of the abdomen, and rarely, in the lining of the heart or testicles.<sup>11</sup> There is no cure. Asbestos has also been linked to lung, ovarian and laryngeal cancer.<sup>12</sup> And because of the decades-long latency period between inhaling asbestos and developing illness, many don't realize the danger they've been exposed to until it's far too late.

So it's become our crusade to hunt asbestos down and get rid of it. We act like it's some insidious enemy, lurking above ceiling tiles and behind old wood. In reality, we're the enemies. We're the ones who dug it up and shoved it in whatever crevices we could find. We did this to ourselves — or, at least, Keasbey and Mattison did.

But they weren't the only ones, or even the first ones. Ancient<sup>13</sup> civilizations discovered that asbestos fibers were durable and resistant to fire.<sup>14</sup> Around 2500 BC, it was used in cooking pots and in the embalming process of Pharaohs. And, as far back as 100 BC, a Roman historian

---

10. "Pleural Mesothelioma: Symptoms, Diagnosis & Treatments." Mesothelioma Center - Vital Services for Cancer Patients & Families. Accessed May 16, 2019. <https://www.asbestos.com/mesothelioma/pleural/>.

11. "The 4 Types of Mesothelioma: Pleural, Peritoneal & Cell Types." Mesothelioma Center - Vital Services for Cancer Patients & Families. Accessed May 16, 2019. <https://www.asbestos.com/mesothelioma/types/>.

12. "Asbestos Cancer Facts & Statistics." Mesothelioma Center - Vital Services for Cancer Patients & Families. Accessed May 16, 2019. <https://www.asbestos.com/cancer/facts/>.

13. "Naturally-Occurring Asbestos - Regulatory Information." California Environmental Protection Agency Air Resources Board. Accessed May 16, 2019. <https://www.arb.ca.gov/toxics/asbestos/reginfo.htm>.

14. "SCDHEC." The History of Asbestos. Accessed May 16, 2019. <https://scdhec.gov/environment/your-home/asbestos/history-asbestos>.

observed that slaves weaving asbestos were falling ill and dying.<sup>15</sup> In<sup>16</sup> 1964, the *Journal of the American Medical Association* published a study that found a high incidence rate of mesothelioma and lung cancer in a group of men who worked with insulation.<sup>17</sup> The movement grew. The Clean Air Act was passed, followed by the Toxic Substances Control Act, which enabled some regulations and additional product bans. Then in the 1980s, a law was passed to monitor asbestos in schools. After that, legislation largely stalled. Several versions of a bill called the Ban Asbestos in America Act were introduced, most recently in 2007. None of them passed<sup>18</sup>.

Long after the Pharoahs but nearly a century before the Clean Air Act, Keasbey and Mattison set up shop. Workers flocked to Ambler to make a living in the asbestos factory. Mattison, the one who made the discovery, had an opera house built. A community built its foundations on top of asbestos. And not just figuratively.

This is the story of a Philadelphia suburb that went from a mill churning out toxic waste to a lovely little town. A large stretch of land that used to be riddled with asbestos became a stretch of lush green grass, with a shimmering pond for the visiting birds. Ambler — the unofficial asbestos capital of the world — was ugly. Now it's beautiful. But what happened in between, and whether or not beautiful means safe, are questions that begged for an answer. What follows is my attempt at one.

---

15. Eradication Authority. "History of Asbestos." Asbestos Safety and Eradication Agency. March 02, 2018. Accessed May 16, 2019. <https://www.asbestossafety.gov.au/about-asbestos/history-asbestos>.

16. "SCDHEC." The History of Asbestos. Accessed May 16, 2019. <https://scdhec.gov/environment/your-home/asbestos/history-asbestos>.

17. Selikoff, Irving J. "Asbestos Exposure and Neoplasia." JAMA. April 06, 1964. Accessed May 16, 2019. <https://jamanetwork.com/journals/jama/article-abstract/1162539>.

18. "Asbestos Legislation - History, Banned Products & Liabilities." Mesothelioma Center - Vital Services for Cancer Patients & Families. Accessed May 16, 2019. <https://www.asbestos.com/mesothelioma-lawyer/legislation/>.



\* \* \*

Diane Morgan, 71, is not taking anyone's shit.

When I arrive at her home in Ambler, she is cooking a dinner to take to her grandson, who's home from college. Her kitchen, along with the rest of the house, is spacious and elegant. It's her husband's dream home, she tells me. They found this nice plot of land, here in Ambler, and got to building. Now, around 20 years later, she'll talk about the asbestos in her town to anyone who will listen. She tells me about it freely, the way she wishes someone had told her.

"People look at me and they say...I bring gloom and doom," she says. "But I don't. I just bring reality."

What Diane didn't know — and what might have made her change her mind, had she been aware of it — was that Ambler and asbestos were deeply intertwined. In order to establish your town as the asbestos capital of the world — which Ambler, in its heyday, was informally called — you have to churn out a lot of product. And when you're churning out product, you're churning out waste. Keasbey and Mattison, and the series of corporations that took over after them, churned out mountains that stretched 100 feet into the sky. Children used to go sledding on them with flattened-out cardboard boxes. Dogs used to play.

The factory is long gone. It closed in the 1970s as the asbestos panic swept the country. As a new decade began, the EPA established its Superfund Program — an initiative that allowed the EPA to identify, and then remediate, toxic waste sites all around the country. Ambler's looming piles

of waste, deemed the White Mountains by locals, made the list in 1986. As much as possible was removed, and the rest was covered under two feet of clean material. In the late 1990s, Diane and her husband joined the fabric of Ambler's little community.

Diane is no stranger to life-changing events. At 39, while running her own business as a speech pathologist, she was diagnosed with non-Hodgkins lymphoma. After a long and arduous fight, she won that battle with cancer. One day, likely sometime in early 2005, her life changed again — this time, while reading the newspaper. She came across a little blurb in the *Ambler Gazette* that would define much of the next decade for her. It described proposed plans to build a 17-story high rise on a former asbestos waste disposal site — a section of land that was not remediated in the original 1986 Superfund site. “I had no idea that there was asbestos. I had no idea there was a factory there,” she says. “I had no idea of anything.”

She immersed herself in research. She learned everything she could. She and several others in the community formed a ragtag group of advocates who not only opposed the construction, but who wanted this second piece of land — known as the BoRit site, after prior owner Bob Rittenhouse — placed on the Superfund list as well. And that's when she ran into the shit.

In order to get the land identified as a Superfund site, knocking on doors to get petition signatures from the community wasn't going to cut it. Diane needed the signatures of certain high-level commissioners. The only problem was she didn't have access to them. So she decided to get it.

In 2008, Diane became both the first woman and the first democrat to be elected Montgomery County Controller. “Once I won, they signed the paper,” she says. “I annoyed them every week.”

BoRit was named an official Superfund site in 2009. It was 23 years after the first site had been identified. It was after iPhones but before Instagram. But the fight was far from over. Diane and that ragtag team, which became the BoRit Community Advisory Group (CAG), were able to block the building of that 17-story high rise. However, it wasn’t the win they were looking for — it had nothing to do with asbestos. They prevented its construction on a technicality: a zoning law didn’t allow a building that high on those grounds. After the hassle, the developer backed out. (The two owners of that real estate development company later served time in federal prison for tax evasion<sup>19</sup>.)

The EPA went forward with the remediation, treating the BoRit site much as they had treated the 1986 site. Some asbestos was removed, and the rest was covered with a geotextile and capped with two feet of clean material. It now consists of three pieces. The one in the center is a charming pond that’s been turned into a waterfowl preserve. It is bordered on either side by the other two parcels, each consisting of swaths of greenspace.

But soil capping wasn’t the only option for remediating the site. And if you ask Diane, it wasn’t the right one. “Burying toxins doesn’t clean them. Making pollution look nice doesn’t make it less toxic,” she says. “You can quote me on that.”

---

19. Hessler, Carl, and Carl Hessler. "Tax Cheat Sentenced to 4 Years." Daily Local News. March 14, 2012. Accessed May 16, 2019. [https://www.dailylocal.com/news/national/tax-cheat-sentenced-to-years/article\\_6ec124c4-e7a9-5600-9d7b-be25b4c48ab8.html](https://www.dailylocal.com/news/national/tax-cheat-sentenced-to-years/article_6ec124c4-e7a9-5600-9d7b-be25b4c48ab8.html).

\* \* \*

Imagine three doors. Behind each one is a way to remediate asbestos waste. Each has significant pros and cons, to do with money, health, and time. You can only choose one door. That was the situation facing the EPA when deciding how best to remediate the BoRit site.

Behind Door 1 was perhaps the most obvious remedy, which was removing the asbestos entirely; digging it up, packing it into trucks, and hauling it off to be dealt with elsewhere. The holes could be filled, grass could re-grow, and the land could be as it was before.

But there were problems with this approach. Most notably, digging up the asbestos fibers could disturb them into the air — and asbestos is most dangerous when it can be breathed. If the fibers were to get into the air, it could pose a greater danger to the community than if they were to just be left in the ground. Sure, measures would be taken — such as tenting the areas where digging takes place — but asbestos fibers are tiny. They can get through extremely small holes. That's what makes them so dangerous when they're inhaled.

The other issue with that, of course, is the price tag. Removing the asbestos would cost about ten times as much as capping it. So, too, would Door 2 — vitrification.

Vitrification is a fancy word for turning something into glass. Through a chemical process, asbestos can be transformed into exactly that. Once vitrified, asbestos isn't really asbestos

anymore. It's effectively harmless. But it's also expensive — around \$250 million.<sup>20</sup> Strike two for the EPA.

That leaves us with Door 3. Turn the knob, and you'll find a pile of dirt with which to bury the problem. The EPA could lay down a geotextile, then a minimum of two feet of clean material like rock or dirt, topped by several inches of topsoil to support plant life above. There would be no disturbance of fibers into the air, and no chemical reactions converting anything to glass. And at only \$26.2 million, it was a much more cost-effective option than the other two. As an emergency action, the EPA began to implement a cap as soon as the site was identified, to mitigate any immediate danger. So, by the time they decided on which remediation strategy to go forward with, the cap was nearly complete.

But there are potential problems with a soil cap, too. By definition, it leaves much of the asbestos right where it is. If something were to disturb the earth two and a half feet below, it could disturb the toxic fibers buried there. Could that happen with a big weather event, like a hurricane? How about a burrowing groundhog? A deep-rooted tree? Yes, yes and yes. The EPA controls for these variables, I was told by the EPA's Remedial Project Manager for the BoRit site Greg Voigt, but it's a constant battle. "Groundhogs," he said, "are pretty persistent."

In terms of research, the rationale for the soil cap comes mainly from a 1977 study performed by the EPA. In that study, the EPA replicated a soil cap, and tested how many fibers were able to penetrate it. They didn't actually use asbestos fibers. They used clay.

---

<sup>20</sup> Record of Decision, BoRit Asbestos Superfund Site, pages 75-77

“The proof is in the pudding, not to, you know, speak in euphemisms,” Voigt says. He references the other Superfund site in Ambler, the one that was identified in 1986. That site has been capped for close to 30 years, and according to him, the EPA hasn’t detected any unacceptable exposure levels there.

Having analyzed the options behind each door, the EPA chose the third. Diane thinks the other options never really had a chance. The EPA started putting the cap in place as an emergency action as soon as the site was identified as dangerous, and by the time the EPA officially decided on a final remediation strategy, the cap was nearly complete. “There was no debate. They had X dollars. 27 million. 25 for the capping, 2 million for the, for the pond, and not a nickel extra,” she says. “And there it was. And that’s what they spent and that’s how they left.”

A number of people agree with Diane in thinking that the EPA hasn’t done enough. But others in the community feel there are much bigger problems at hand. And their voices are just as loud.

\* \* \*

“I was not a parent who ever thought about asbestos exposure for my children and whether I had to worry about that.”

This sentiment comes from Mary-Margaret Monser, the chair of Ambler’s Environmental Advisory Council. I meet her in the cafe section of a local grocery store. She has shoulder-length curly hair, mostly brown, but interwoven with strands of gray. She gets a beverage from the self-serve coffee section before sitting down with me at a small table by a window. Behind us, people

shop for produce.

“Am I concerned about their exposure?” she says. “I don't think that they were exposed long enough for it to be...as much of a concern as my daughter riding her motorcycle.”

Monser isn't alone in thinking that asbestos, at least when capped, is not a major threat. It's also not a new thought. “Clearly, the asbestos panic in the U.S. must be curtailed,” researchers wrote in a 1990 article published in the journal *Science*, “especially because unwarranted and poorly controlled asbestos abatement results in unnecessary risks to young removal workers who may develop asbestos-related cancers in later decades.”

The authors go on to say that according to the data, asbestos does not seem to be a health risk outside of an occupational setting. In other words, the people who are really affected by exposure to it are the people who work with it directly. “When you think about all those people who were directly exposed day in and day out to asbestos so many years ago,” Monser says, “and you think about today, those factories are gone — they're closed down.”

The threat of death isn't as significant now as it was to the factory workers when asbestos production was still going on in Ambler, she says. It's a different situation now. “The majority of the people who worked at those factories and had that everyday exposure who brought it home to their children. “They're gone. They're dead,” Monser says. “Other generations have come along.”

Monser's father-in-law worked at the factory for years before starting his own landscape

business. At 77, he was diagnosed with lung cancer. After treatment, he lived for seven more years. She says maybe asbestos played a role in his death. His final hours, as she describes it, were almost peaceful. “He passed away relatively quickly. He had all of his faculties about him but, people are gonna die,” she says. “And he lived a good long life.”

For Monser, it’s all relative. She feels there are greater threats right now, more important things to be worried about. The authors of the *Science* paper expressed some similar sentiments. Convincing people not to smoke, they argued, would do more to prevent lung cancer than removing asbestos from their environments.

Susan Curry, a former member of the BoRit CAG and Ambler EAC, also feels there are bigger concerns at hand than the capped asbestos site. “I’m 73,” she tells me in her living room, “so in 20 years from now, I’m going to be 93, and maybe I’d be grateful for something that takes me out. I don’t know what my health will be like then.” Outside, a January snow squall turns the sky into a near white out. “I don’t think asbestos flying in the air is the big problem that it was before the capping happened.”

To be sure, Curry isn’t totally content with the EPA’s action in the area. But in terms of greater threats, it’s not daughters on motorcycles that concern her so much as other dangerous materials that still see widespread use. “There’s so many toxins that it’s almost like this is a needle in the haystack kind of problem,” Curry continues. “I would rather a lot more tend to be put on the toxins that come through fertilizers and pesticides and products that people can buy at a hardware store.”



For some perspective, I turned to Arthur Frank, a professor of environmental and occupational health at Drexel University. Frank has served as a medical expert in at least 5,000 legal cases. 90 percent of them, he estimates, were asbestos-related. When I asked him if he thought it was safe for people to live near the asbestos Superfund sites in Ambler, he too brought up the idea of relativity. “Safe is a relative term,” he told me. But he’s not so content.

“I’m not sanguine about the level of cleanup in the community of Ambler,” he says. “It’s certainly safer now than it was when the 90-foot piles were, were uncovered. I’m not sanguine about what gets into people’s drinking water that ends up, you know, part of the water supply of Philadelphia and other places along the way. I’m not sanguine about the disturbance of the ground that’s been inadequately covered,” he says. “But it’s safer than it was, and it’s not as safe as it could be.”

\* \* \*

In September 2018, the EPA released a report containing measurements of the asbestos all around the BoRit site, post-remediation. This is after all the caps, geotextiles and precautionary measures. This included water on the site, where the numbers came out to be somewhat alarming.

The EPA’s intended goal for asbestos fibers in surface water on the site was no more than 0.0001 million fibers per liter. That’s one million fibers every ten thousand liters, or 100 fibers per liter — a threshold the EPA deemed necessary for the area’s ecological health. “The takeaway is that if birds and fish and aquatic organisms are exposed to water with concentrations of asbestos

above that remediation goal,” Voigt says, “that, that they could basically be at risk for mutation...cancers, that kind of stuff.”

The surface water was measured in two places. The first was the reservoir on the site that’s been converted to a Waterfowl Preserve, where elegant birds come to dine and bathe. According to self-reported sightings<sup>21</sup>, it’s been the landing place for the Great Blue Heron, Belted Kingfisher, Great Egret, and the Sharp-Shinned Hawk. The measurement of the surface water there came out to 0.55 million fibers per liter, or 5,500 times the remedial goal.

The second was a portion of the Wissahickon Creek that runs through the site. The Wissahickon Creek flows into the Schuylkill River, which cuts through Philadelphia on its way to join the Delaware River. Its mean surface water concentration clocked in at 2.0 million fibers per liter, or 20,000 times the remedial goal.

Ecologically, those numbers suggest the BoRit remediation has fallen far short of the mark. But the situation is complicated. It’s possible, for example, that the numbers reflect asbestos inputs from sources other than waste on the site — storm sewer pipes that were made with asbestos-containing material, contractors dumping their own waste, and passing trains throwing off bits of asbestos from their brake pads. Voigt feels this is an explanation, and that no additional remediation is warranted. Instead, he suggests raising the threshold they identified in the first place, to make the goals easier to meet. “Maybe the number that we selected is a little too conservative, given you know, the sort of the circumstances in which the site is located.”

---

21. "Wissahickon Waterfowl Preserve." EBird. Accessed May 16, 2019. <https://ebird.org/hotspot/L1888263?yr=cur&m=&rank=mrec>.

There are two possibilities. If Voigt is right, then the EPA's original threshold for environmental safety was off by a factor of 20,000. If he's wrong, and the original threshold was an accurate measure of what's safe for creatures, then they're living with water that's 20,000 more dangerous than it should be. So either the EPA's criteria for determining safety thresholds is deeply and alarmingly flawed, or animals are in danger. And either way, that's a very serious problem

\* \* \*

On the corner of Oak and Maple, immediately next to the BoRit site, sits a row of little houses. This Western part of the town is home to a large portion of Ambler's African-American and underprivileged community. They are a stone's throw away from hundreds of thousands of yards of capped asbestos. And now that the site has gone from a pile of toxic waste to a park fit for swans, those residents may be paying the price. "So they're being, in essence, pushed out," Sharon McCormick says. She's another member of the BoRit CAG, and she sits with me in an Italian restaurant in downtown Ambler, along with Diane and Sharon Vargas. Vargas, also on the CAG, works for the local Veterans Affairs association. In addition, she works closely with Ambler's black community, advocating for those who don't have the time or the resources to do so for themselves.

"Gentrified out," Morgan adds.

Vargas tells me a story of a family with three small children, whose landlord refused to fix the stove or make any repairs because he "wanted them out." She tells me that while trees that might

interfere with the power lines were cut down around new apartments built in the area, they're still present for the rest of the community, posing a constant threat.

“That's like strategy number one,” says Winifred Curran, a professor in the Sustainable Urban Development department at DePaul University. “They try to make the existing housing so unpleasant that... basically people displace themselves. You know, that they make the housing so unbearable that people feel that they have no choice but to leave.” This, Vargas alleges, is exactly what's happening in Ambler's low-income black community.

Of course many of these methods are illegal. But the legal process is a long one, and if a family's hot water or heat has been cut off, they may not have time to wait. Tenants in these communities often don't have the financial resources to pursue more aggressive legal action.

The problem is rooted deeper than a minority community being pushed out. According to Curran, the race of a group of residents is directly tied to their proximity to a toxic area in the first place. “Race is the single greatest predictor of where you're going to have some of toxic site,” she says.

Curran says the question of what usually comes first, the minority communities or the toxic waste, is chicken-and-egg. There is no clear trend of one causing the other. What matters is that they often wind up together. “All things that are undesirable, or that had been considered undesirable, had ended up being in the same places,” she says. “So whether that is toxic things or people of color, they are consigned to the marginal areas of the city.”

And now that the BoRit site has gone from undesirable to appealing, it seems that minority community is being pushed away. “Part of the frustration of contesting gentrification is that it keeps on coming,” Curran says. “You know, you just heat one project and another project is right behind it, you know, and so it’s just this constant game of whack-a-mole.” With the remediation of the BoRit site, it’s a game that West Ambler may have unwittingly just joined.

\* \* \*

A few notable things happened in 2018. Prince Harry made a princess of American sweetheart Meghan Markle. The Camp Fire ravaged California. Bill Cosby went to jail, while Brett Kavanaugh went to the Supreme Court. And the township of Whitpain, which owns 11 acres of the BoRit site, got a \$1 million grant from the government.

The grant will go towards what they refer to as their West Ambler Revitalization Plan. That plan starts with the BoRit site — or rather, what could go on top of it. The plan includes a basketball court, horseshoe pits, and an amphitheater. It includes a community porch and a playground. And it includes a Boys and Girls Club, where children will be able to learn and play.

In order to assess the BoRit site, the EPA set certain site-specific goals for how low the levels of asbestos in air should be. These goal levels are based on human health risks.<sup>22</sup>

---

22. Attachment C - Final Site Management Plan for Post Remedial Action Confirmation Sampling and Long-Term Monitoring, page 2-4, first paragraph.

For a certain kind of air sampling, the goal is for the asbestos to come out to 0.04 fibers per cubic centimeter, or less. Let's put in that in terms we can visualize. An empty Grande cup at Starbucks holds 16 oz of air — that's just over 473 cubic centimeters. According to the EPA's regulations, you could safely be exposed to just under 19 asbestos fibers per one of those empty cups.

On that 11-acre site that the township plans to build on, the measurement comes out to <0.038 fibers/cc. That's under their own established threshold — safe. It's closer to 18 asbestos fibers in our Grande cup. The problem is, that's the measurement at adult height.

If a bunch of asbestos is buried in the ground, it makes sense that there will be more fibers lower down. The fact that the measurement comes to <0.070 fibers/cc at child height isn't surprising. But it is above the threshold. In one Grande cup, 0.070 fibers/cc is a little over 33 asbestos fibers. Or, in purely mathematical terms, it's 75% greater than the identified safe threshold. But there's that tricky < sign before the 0.07 measurement.

“The upper limit is reported as <0.070 s/cc; meaning there is a 95% probability that the true concentration in the sample is less than 0.07 s/cc, but the true concentration cannot be stated with certainty,” Voigt wrote in an email to me. He went on to say that because of the preparation methods of some of the samples, the probability of the true concentration clocking in below 0.07 s/cc may be even *lower* than 95% — “e.g., the probability may only be 80%.”

Voigt posits that due to “the inherent variability and uncertainty” of the sampling method, “there is no meaningful difference” between the asbestos concentrations in air at adult height versus

child height. Further, because the measured concentrations at adult height were below the remedial goal, the concentration at child height are “very likely” to be below the remedial goal as well.

Here’s the translation: The alarmingly high measurement at child height should be disregarded due to uncertainty in the sampling method, but the safe measurement at adult height should be taken as safe, and because it’s safe at adult height, it’s probably safe at child height too. And if that’s how uncertainty and probability worked — only one way, and conveniently in the way that makes the EPA look the best — then it might be believable. Of course, it’s not. But that’s the EPA’s story, and they’re sticking to it.

To be sure, Whitpain Township has not yet submitted their plan to the EPA, who will need to approve it before anything can get built. But so far, they’ve got a million dollars and a pretty comprehensive plan.

While Voigt been looking at purported uncertainty the data, I’ve been looking at the maps. I’ve been looking at Libby, Montana, where waste from a vermiculite mine that once kicked up about 5,000 pounds of asbestos dust has also largely been covered in soil. I’ve<sup>23</sup> been looking at Statford, Connecticut, where an automotive part manufacturer named Raybestos (The *best* in brakes™) dumped asbestos waste not only on their own facility, but on at least 46 residential properties, wetland areas near the Housatonic River, and more. On the 34-acre site of the facility, they installed a soil cap and put in a shopping center. They buried the waste and built a

---

23. "Montana - Asbestos Risks, Libby & W.R. Grace." Mesothelioma Center - Vital Services for Cancer Patients & Families. Accessed May 16, 2019. <https://www.asbestos.com/states/montana/>.

Walmart.<sup>24</sup>

I've been looking at Klamath Falls<sup>25</sup>, Oregon. I've been looking at Victorville<sup>26</sup>, California. I've been looking at Colts Neck<sup>27</sup>, New Jersey. I've been looking at them all. And I've been wondering how many measurements are escaping the EPA's notice like this one escaped Voigt's. I've been wondering how many creeks have an asbestos level 20,000 times higher than is safe for the animals living in and around it. I've been wondering how many low-income African American families might be priced or mistreated out of their homes because the toxic waste they used to live next to has been covered with dirt. In Ambler and across the world, there is dirt left to dig. It is heavy, it is old, and it is toxic. But that doesn't mean it can't be done.

Back in the Italian restaurant, with the three outspoken women of the BoRit CAG, Diane tells me Sharon McCormick lives four blocks away from the BoRit site. McCormick doesn't think it's safe to live in Ambler, even with the cap on the BoRit site in place. I ask her why she still does. One reason is that she and her husband have jobs in the area. The second reason is the one that hits me.

“Where am I gonna go, Conshohocken? Asbestos. Conshohocken. Fort Washington? Valley Forge? Asbestos in Valley Forge,” she says. “Where am I gonna go?”

---

24. "RAYMARK INDUSTRIES, INC. Site Profile." EPA. October 20, 2017. Accessed May 16, 2019. <https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0100094>.

25. "Search Superfund Site Information." EPA. December 28, 2016. Accessed May 16, 2019. <https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=1002476> Done.

26. "Search Superfund Site Information." EPA. December 28, 2016. Accessed May 16, 2019. <https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0902737> bkground.

27. "Search Superfund Site Information." EPA. December 28, 2016. Accessed May 16, 2019. <https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0201160> bkground.