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04.08.2016

DETROIT MAKES YOU SICK

IT'S NOT JUST FLINT. PEOPLE ALL OVER THE MOTOR CITY ARE BEING POISONED WHILE OFFICIALS LOOK AWAY

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sucking on a tailpipe

In Detroit's industrial suburbs, toxic air is destroying generations of black residents while local and federal officials twiddle their thumbs

By Zoë Schlanger
Photographs by Sean Proctor

Jacqueline Cason didn't expect

to be crawling down the stairs of her own damn house at 38 years old. Back in Mississippi, her asthma was annoying but manageable—a puff from an inhaler now and again. Then, just over a year ago, she moved into a little modular home on a quiet street in River Rouge, Michigan, a tiny city of 7,000 that kisses the southern edge of Detroit. Now she's awakened in the morning, three days a week, at least, sometimes seven, by an asthma attack. She gasps, desperately sipping the air but inhaling little or none. "It's like being a fish out of water," she says.

When it hits her, Cason's lungs fill with mucus while her esophagus walls swell nearly shut. Her diaphragm responds by contracting faster, pressing on her lungs, desperate to catch some air, making her gasp rapidly, violently. Her chest feels like someone is sitting on it, collapsing her sternum toward her spine. Minutes become enemies, and letting two or three pass is too many. So when she forgets to leave her rescue inhaler by her bed, she gropes and crawls down the stairs to find it. It's the sort of thing that no one would consider ordinary—unless you've been living in the industrial suburbs south of downtown Detroit a long time. Then it passes for routine.

Cason's son is 10, and he doesn't have asthma. "Not yet," Cason says. She's worried that staying in River Rouge too long will change that. In these parts, it's easy to feel like everyone has asthma, since so many do. The last time Cason went to the doctor, he told her to move. She'll try to eventually, she says, but the rent is low here, and the neighbors are nice. "It's a community, like back in the day." During the last snows, she says, the whole block was outside, digging one another out.

If Cason had known about the pollution, she might have picked a different city. But she's here now. Her grandmother lives down the block, her son is settling into his new school, and her niece just moved up to join them. But her niece also has asthma, and it got dramatically worse when she arrived: She has attacks almost as often as Cason. The two of them are in and out of urgent care so often that Cason has a standing prescription at the pharmacy for the strong type of steroids they give you in the emergency room. It isn't any way to live. "I like my neighbors, but I like my health much more," she tells me while sitting on the velour sofa in her pristine living room. It has to be pristine; letting dust settle is asking for trouble.

It's dirty in River Rouge, and everybody here knows it. The way the air smells, and the gas flares, coal piles and smokestacks around every corner don't let you forget. There are 52 sites of heavy industry within a 3-mile radius; 22 of these either produce over 25,000 pounds or handle more than 10,000 pounds of toxic chemical waste, putting them on the Environmental Protection Agency's Toxics Release Inventory Program. For years, the area has also been "out of compliance" for sulfur dioxide, meaning there's more SO_2—a known contributor to asthma—in the air than federal rules allow. The state says it's working on it. Lynn Fiedler, of the Michigan Department of Environmental Quality (MDEQ, the same department blamed for the disaster in Flint, where lead was allowed to remain in the drinking water at levels high enough to poison children), says they've been "working with companies to get them to reduce their emissions," but she stumbles when trying to explain the holdup: "It's been a difficult negotiation," she says. "It involves changes in operation," meaning polluters will likely need to install new equipment, a prospect costly enough to make them balk.

Some of the biggest SO_2 emitters in the area are two postwar-era, coal-fired power plants owned by DTE Energy, located a few miles apart. One sits in River Rouge; in 2011, it was ranked the ninth-worst plant in the country for health outcomes in communities of color by the NAACP. Combined, the two plants pump out 34,000 tons of sulfur dioxide each year, or the weight, in pollution, of a modestly sized cruise ship. Getting DTE Energy to reduce emissions has been a struggle. "They are reluctant," Fiedler says. "We are continuing discussions with them." In the meantime, MDEQ granted the plants a permit last year to carry on business as usual.

"I like my neighbors, but I like my health much more."

As I drove east from the Detroit airport into River Rouge, the acrid stench of rotten eggs filled my rental car—despite the windows being rolled up against the cold. I kept driving, and the smell acquired notes of burnt plastic and gasoline. If I had been anywhere else, I'd have worried that my car was about to burst into flames. But I was in River Rouge, so I knew better.

The landscape of heavy industry rose up around me, billowing smokestacks and cisterns and gas flares. Nearby, on a sliver of land called Zug Island, the black, twisting infrastructure of U.S. Steel's blast furnaces gives the island the feel of an industrial Mordor. A few times a month, I'm told, the whole sky turns a dusty orange from the steelmaking. Zug Island is just past Detroit's wastewater treatment plant, which emits volatile organic carbons, a class of highly volatile chemicals that include carcinogens like benzene and formaldehyde, as well as Carmeuse Lime, a cement manufacturing plant, which emits sulfur dioxide, along with the ultrafine particulate matter called $PM_{2.5}$, nitrogen oxides, hydrochloric acid, mercury and lead.

I pulled into a gas station. As soon as I opened my car door, I could feel the air in the back of my throat like a fine spray of gravel. I asked the attendant if it always smells like this. "I've been here 35 years. I don't smell it anymore," he said, laughing. "But you know we have a lot of industry around here, right?" He gestured toward the Marathon Oil refinery a quarter-mile down the road.

MONEY TRAP: Cason's doctor told her to move away from River Rouge because of her worsening asthma, but rents are low, and she can't really afford to pull up stakes.

ZOË SCHLANGER/NEWSWEEK

HEAVY AIR: Anderson, who has worked for decades to get officials to deal with the pollution, says she fears she needs to make signs declaring, "Asthma is not normal."

The MDEQ is in the final stages of granting the sprawling Marathon refinery a brand-new permit, which will let it emit an additional 22 tons of sulfur dioxide a year in an area that already exceeds federal standards for that gas. The 22 tons of SO_2, the MDEQ insists, aren't much. That's true, to an extent; alone, that amount of SO_2 is not catastrophic. But the permit doesn't take into consideration how these new air toxins will mix with all the other pollutants being dumped on the people of River Rouge. That's because the Clean Air Act, the nation's only omnibus air pollution bill, doesn't have anything that considers toxic cocktails—and so puts limits on only individual toxins, and never the mix.

The act became law in 1970, with the primary purpose of identifying and limiting major pollutants for a country that had never regulated even the most obvious of them, like carbon monoxide. Since then, the most recent major revision to that fairly rudimentary set of objectives was in 1990, when a series of changes led to more comprehensive permitting procedures and better pollution monitoring. That's more or less what we're left with now, 26 years later. Science has learned a lot about what makes people sick in those 26 years—particularly, that there are combined effects from the plumes of gas and particles, visible and otherwise, that billow from every factory, power plant, manufacturing outfit and tailpipe. We now have proof that, for example, breathing in nitrogen oxides *and* sulfur dioxide do greater damage combined than either would alone. But that knowledge is not reflected in how the government regulates them.

"At this time, our understanding of the science does not allow us to set health-based standards that address potential cumulative or additive impacts of exposure to multiple pollutants," the EPA wrote in an email when I asked why not. Bob Sills, a toxicologist for the MDEQ, says he's been asking the EPA about its progress on this issue for "about 20 years." The agency tried, several years ago, to come up with a way to take into account the combined contribution of nitrogen dioxide and sulfur dioxide to acid rain. "Their scientific advisers told them it was not scientifically valid enough to proceed with it," Sills says.

One problem, explains Stuart Batterman, a professor of environmental health sciences at the University of Michigan, is that there are too many data gaps in toxicology to meet the high threshold of certainty required by the regulatory agencies. Still, Batterman sent a lengthy letter to the state earlier this year, urging it to deny Marathon Oil the new permit to emit more SO_2 than the old permit allowed. The permit, he wrote, "does not consider cumulative exposures" in an area where people are already subjected to among the "highest cumulative air pollution exposures" in the state.

According to the latest state data, more than 15 percent of Detroit's adults have asthma, a 29 percent higher rate than the rest of Michigan. Detroiters are hospitalized for their asthma three times more frequently than other Michiganders. Being black ups the rate significantly: Black Detroiters are hospitalized for asthma at a rate more than 150 percent that of their white neighbors—and Detroit is 83 percent black. Most of the mini-cities ringed around the heavy industry south of Detroit are majority-black too. Poverty compounds the problem—it's not easy managing a chronic illness when you're making $24,000 a year, the average household income for black Detroit households.

So many people have asthma around here that there's a bootleg market for inhalers.

RIGHT: ZOË SCHLANGER/NEWSWEEK

So many people around River Rouge have asthma that there's a bootleg market for inhalers (street value: $15 to $20 a pop) and the blister packs of albuterol, the caffeine-based medicine that fuels nebulizers ($10 a dose). Buying on the block is easier than going to a doctor, especially since the nearest asthma clinic is at least a town away or more, depending where you live. The closest emergency room, also at least 20 minutes away, is always full. The city has notoriously shoddy public transportation, and if you don't own a car, a trip to the doctor can take most of your day. If you have kids, you'll also need child care and a day off work. Meanwhile, you're struggling to breathe, and that $15 inhaler starts to look pretty good.

Poisoning Your Genes

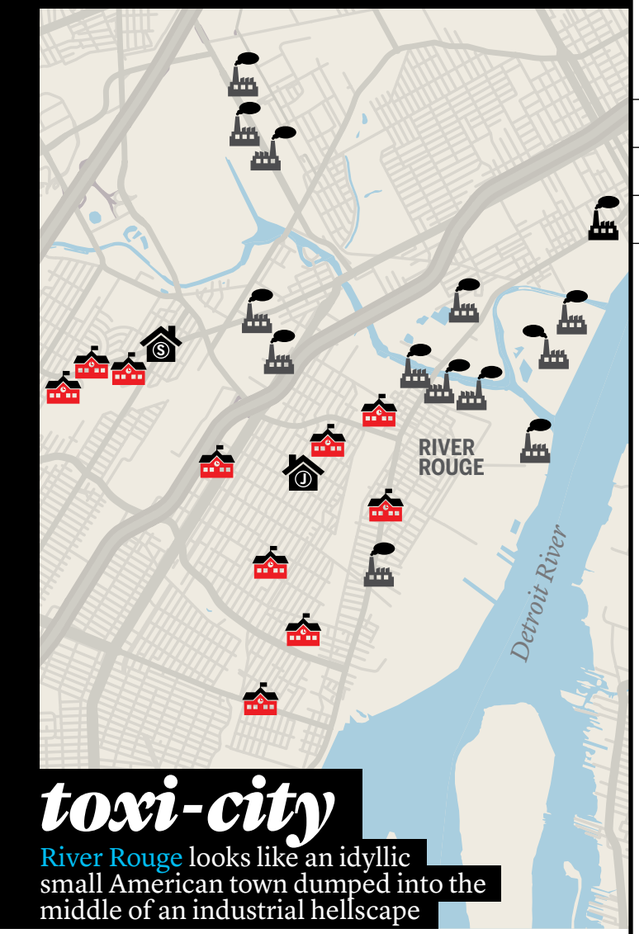
IN AMERICA, race is the biggest factor in determining whether you live near a toxic waste site. In mostly white states, it'll be the black or Latino neighborhoods that get the oil refineries or garbage incinerators. In and around Detroit, that's true to an almost ridiculous degree. In 2011, Paul Mohai, a professor and the founder of the environmental justice program at the University of Michigan, mapped Detroit's public schools over air pollution data. He found 82 percent of black students went to schools in the most polluted parts of the city, while 44 percent of white students did. What's more, children in those pollution-exposed schools scored lower on standardized tests. Air pollution has already been shown to cause cognitive delays in children and an array of adverse pregnancy outcomes, such as early birth and low birth weight, which can also impair a child's brain development down the road. Of course, having severe chronic asthma and the sleep apnea that often comes with it probably doesn't help student scores either.

Michigan tried to do something about environmental racism a few years ago: An expert panel was assembled in 2008, and it was disbanded in 2010 after issuing suggestions to the state on how to directly address the problem of poor black people being poisoned and ignored. The state set up a grievance line, but outside of that, "I'm not aware that there was any follow-up action with that plan," says Mohai. He and the two other academics on the panel suggested the city's health department talk to its environmental department about environmental justice issues on a regular basis. That never happened. The only positions in the Michigan Health and Human Services agency that deal at all with the intersection of pollution and health were eliminated when state budgets were gutted a few years ago. The health department has an asthma program, and the environment department has an air toxics program, but they don't talk to each other. And whether you're a person of color living in Detroit, or Flint, or Vernon, California, where the Exide battery factory is ruining communities made up primarily of Latino families, you won't get much help from the federal government: The EPA denies 95 percent of civil rights claims against polluters made by communities of color.

"How can you ask to increase something like that, when people are already living here, as if it isn't enough? When is somebody going to say, 'No, hello, there's people living right in the vicinity?'" Asks Cason, who lives less than a mile from Marathon. The general sentiment is that the state is putting industry profits ahead of the people, especially black people.

There's a comparison I hear over and over again in River Rouge: Flint, Michigan, an hour's drive up the road, is also a black city, and Flint was ignored by a negligent government that wouldn't hear its complaints for two years. Now Flint's children are poisoned, and most blame MDEQ.

Flint had lead; southwest Detroit has sulfur dioxide, nitrogen dioxide and carbon dioxide—benzene, toluene, cadmium and mercury. A litany of carcinogens and respiratory irritant fill



toxi-city

River Rouge looks like an idyllic small American town dumped into the middle of an industrial hellscape

the air residents have no choice but to breathe. Cancer and asthma. A population sucking on a tailpipe. "If you were going to put something in a population to keep them down for generations to come, it would be lead," a doctor said about Flint to the *The New York Times*. Or you could give them toxic air pollution every day until they die.

Air pollution, it turns out, can change your genes, so the pollution you breathe can damage your children and grandchildren too. In 2008, Kari Nadeau was finishing her pediatric residency at Stanford University in California, studying the connection between underactive regulatory T cells—a hereditary trait—and childhood asthma. One day, she caught a PBS *Nova* episode on the exploding field of epigenetics, the ways our specific environment can modify our genes, and how those changes can be passed to our offspring, their offspring and so on, and she was struck with an idea. She went back to her research data, and this time organized her subjects by ZIP code. A pattern became exceedingly obvious: All the children with underactive regulatory T cells lived in Fresno.

Fresno, in California's Central Valley, is the most polluted city in the state, due to a deadly combination of diesel exhaust and agricultural pesticides. Most residents are immigrant farm workers and people of color, many living below the poverty line. And lots of them have asthma. "The babies are born with it," says Nadeau, today a physician and professor at Stanford. The babies' lungs never have a chance to develop normally in the womb because their mothers live in a high-pollution area. When a pregnant woman takes a breath, the tiny molecules of air pollution pass through her lungs and into her bloodstream, slipping into the blood cells—which flow to her fetus, delaying and damaging its lung development. The fetus's lungs, Nadeau explains, may grow fewer alveoli, the grape-like clusters in which air is taken and oxygen is separated and diffused to the blood. In other words, the babies are born with diminished lung capacity. (Plus, she adds, evidence suggests that lungs continue to develop until we're about 25 years old; she suspects air pollution will be stunting alveoli development the whole time.)

Perhaps more alarming, those same pollution molecules slip into the blood that feeds ovaries and testicles. If those are altered, so are the offspring created by the eggs and sperm those organs produce. In fact, Nadeau was able to infer that the genes of her Fresno patients were fundamentally altered so that they would be more likely to develop asthma and allergies. And of course, those genes could be passed down to their children, and their children's children, even if those later generations have moved away and are no longer exposed to the pollution.

In addition to scarring genetic material for generations to come, pollution exposure changes how a baby develops in the womb. Some pollution molecules, like the polycyclic aromatic hydrocarbons in diesel exhaust, are known to cause cancer, perhaps especially when a person was exposed as a fetus. Others affect the heart; still others are neurotoxins. Air pollution also impairs immune development in utero, making it harder for those exposed to fight infection. If you can't fight infection well, you won't respond properly to vaccines, because many vaccines work by prompting your body to make antibodies—a task that requires a robust immune system. "And if you get more viral infections, that also predisposes you to asthma," says Nadeau. It's a one-two punch that hits a child even before birth.

Gasping at Birth

SOME OF THE homes in River Rouge have backyards that butt up against the edge of the campus of the DTE River Rouge coal plant, which is flanked by a mountain of coal; you can see the coal monolith in the gaps between houses as you drive by. And if you look up, you can see three smokestacks rising above the homes like church spires. But if you keep your gaze directly ahead, down the street lengthwise, the street looks like any other in Anytown, USA: wood-frame houses with toys in the yard, used cars, a few bare trees. It's a TV-sound-stage-ready, all-American, working-class neighborhood plunked down in the middle of an industrial wasteland.

One of these houses, on Eddon Street in the nearby mini-city of Melvindale, is home to 30-year-old Christina Gilbert and her 7-year-old son, Shiloh Otoo. I could see the blinking lights of Marathon's refinery from the White Castle parking lot, two doors down; the air here smells just as much of eggs as it did in River Rouge. I wait as Elizabeth Milton rings the doorbell of the two-story house and then shouts "Grandma!" when 52-year-old Nancy Howard—Shiloh's grandmother—answers the door.

Milton is a warm and gregarious door-to-door asthma educator, dispatched to people's houses when their respiratory illness isn't improving from doctor's visits alone. That happens a lot. "There's only so many windows I can shut or filters I can change," she says later. And these people aren't improving as much as they should, no matter what she does, because their exposure to air pollution isn't going away.

Parents of young kids with asthma don't sleep, because they're afraid their child might stop breathing in the night.

Inside the house, Shiloh sprawls on a tan couch over the laps of his mother and grandmother while they talk about his sickness. He is on nearly the highest possible dose of asthma medication, yet is in and out of the hospital on a regular basis. He straps on the plastic mask of a nebulizer to show me his morning and evening routine: He takes long drags of albuterol between puffs on an inhaler. Shiloh lives only two blocks from school, so it will add him to the bus route only if Gilbert registers him as a "special education" student, a label that would follow him for the rest of his school life. So despite the fact that his mother doesn't want him to walk even that short distance because it exacerbates the asthma, Shiloh walks, in all weather.

Shiloh recently developed brittle bone disease, his ankle bone showing up like a sponge on an X-ray this winter. Milton says it's a common side effect of taking too much prednisone—the strong emergency oral steroids he gets when he goes to the hospital for

WAKING TERROR: Milton says ADHD diagnoses are common for kids here, probably because they're hopped up on caffeine and prednisone

an attack, which he does often. Shiloh is already obese, because he can't run around outside without struggling to breathe, and the steroids in his inhaler make him ravenous. He has sleep apnea, like many asthmatics do, and seems to have an especially fragile immune system. He gets colds nearly back to back each winter. "He's my medical child," she says.

Though Shiloh has dodged it so far, Milton says attention deficit hyperactivity disorder diagnoses are common in the children here; she thinks it's because they're hopped up on caffeine from the albuterol and steroids from the prednisone.

Both Gilbert and Howard have asthma too. In 2013, a tank at the Marathon refinery caught fire, sending thick, black smoke billowing down their street and all the streets around them. Several neighbors on other blocks were evacuated, but a police officer stepped out of his car in front of their house and told them they could stay. "He was wearing a gas mask! If we could stay, what was he wearing that for?" Howard remembers thinking. "Marathon sent out gift cards to everybody as an apology for that happening," Gilbert says, "$50 or $100."

Shiloh was diagnosed with asthma when he was just 9 months old, and Gilbert wonders if her son would be healthier if they'd lived someplace else. "I think maybe that just by living around Marathon it might do more harm than good, but at the same time, on my income, that's all I can afford."

Later, over coffee and muffins at a Tim Hortons, Milton's gregariousness fades, and she starts to tear up. She feels desperately sad for the children she sees. "We're not even giving them a chance," she says. In many cases, she'll walk into a house and immediately know everyone in it is depressed, which is common among the chronically ill and chronically underemployed. They'll be listless, the house a mess, the fridge empty. The stress takes a toll on all parts of their lives: Parents of young kids with asthma don't sleep because they're afraid their child might stop breathing in the night. Then, when they turn 12 or 13, the kids become terrified of dying, Milton says. "They don't sleep. I had one kid, he thought he'd die in his sleep. We got his asthma more under control, and I asked him, 'Are you going to sleep now?' And he said, 'I'll work on it, Miss Milton.'"

One pernicious effect of everyone around you being sick is that it can start to feel normal.n "It's gotten to the point where I want to start a campaign with signs that say 'Asthma is not normal,'" says Rhonda Anderson, an organizer with the Detroit chapter of the Sierra Club. She's spent two decades taking air samples, working with environmental scientists and residents, and pushing the city and the state to do something about it all.

Anderson grew up in River Rouge and has had asthma since birth. Now she lives in Detroit proper, because experience tells her River Rouge is no place to live if you can help it.

Recently, Anderson says, things have seemed a bit more hopeful: For the first time in as long as she can remember, the city has an official willing to make a connection between the plants and the high rates of sickness. In a *Detroit Free Press* editorial earlier this year, Dr. Abdul El-Sayed, the new director of the Detroit Health Department, said what Anderson has been waiting to hear for years: "Constricted lungs, diseased hearts, tumors in the lungs and beyond: These are consequences that the MDEQ wants Detroiters to accept," El-Sayed wrote, lambasting the agency for moving ahead with Marathon's SO_2 permit. "Enough is enough."

Soon after that editorial was published, Marathon began working with El-Sayed and the Detroit mayor's office to amend their permit so it no longer includes those additional 22 tons of SO_2 per year. "We've heard very clearly from the residents and Dr. El-Sayed," says Jamal Kheiry, a Marathon spokesman.

"We'll see," Anderson says, "but hope isn't good enough. I need faith, faith that something is going to happen." Her aunt died in her grandmother's arms of an asthma attack. Her oldest daughter and her son have asthma. Her younger daughter doesn't have asthma, but her 11-month-old baby was recently diagnosed with it. Two more of Anderson's grandchildren have it too.

Southwest Detroit, like Fresno, like Richmond, California, is part of a huge public health disaster that began, roughly, with the Industrial Revolution; populations, mostly poor, mostly people of color, sprinkled with the effluent of industry until their bodies changed, their minds changed and their prospects died. The disaster merges with everyday life as generation after generation learns to live with what hobbles it, while the rest of the country and its government institutions watch with tacit acceptance, or barely watch at all. Like in many places where the things the rest of the country uses are made—steel, gasoline, electricity, cotton—the people in and around Detroit have become collateral damage.

If you're the optimistic type, it's possible the disaster in Flint will spark an inquest into the slow, steady poisoning of Americans of color, or at least put the spotlight on other toxic hot spots. But the public interest—and media attention fueled by it—is already waning. Meanwhile, kids being born every day, and their parents, don't have time to wait for their *Silent Spring* moment. They have lives to live, and they need to be able to breathe. Says Anderson, "I think every child born in the city of Detroit should be sent home with a nebulizer." N

This reporting was supported in part by the Institute for Journalism & Natural Resources.

EARLY WARNING: Shiloh, diagnosed with asthma when he was just 9 months old, also suffers from sleep apnea, obesity and an especially fragile immune system.

PLANT LIFE: The Detroit salt mine, next door to the Marathon Oil refinery, is just one of the many industrial facilities nestled up against the small towns that ring Detroit.

The EPA denies 95 percent of civil rights claims made against polluters by communities of color.