

Margaret Magruder
Columbia County Board of Commissioners
230 Strand St.
St Helens, OR 97051

January 15, 2022



Commissioner Magruder,

Driving from my former home to the Phoenix airport I began to smell something horrifically putrid. As I drove further south, the odor was so overwhelming I was impelled to close my windows and turn on my car's climate control re-circulating air feature. It helped, but the smell was now inside my car.

I learned later not only what I encountered was obnoxious, it was noxious. I learned constant exposure could lead to some very serious health problems, including headaches, nausea, as well as mental health illnesses such as depression and anxiety (see NY Times article, Jan 15, 2022, enclosed).

On my drive to the airport, I finally caught up with the source of the gagging, horrendous smell. It was a truck loaded (and labeled clearly) with fat and grease, presumed to be on its way to the rendering plant in the Sonoran Desert for recycling. The intense putrid smell was much worse than I could conceive or can fully express.

Now imagine living just a breeze away from a plant which processes used cooking oil and animal fats like what I smelled from that truck. This is what we can expect with the proposal from NEXT Renewable Fuels, Inc. at Port Westward. This could be a game changer for the quality of your life, as well as for your health and wellbeing.

Don't take my word on this or the promises from NEXT. I invite commissioners to personally visit a rendering plant. Raw materials for rendering which will be shipped to Clatskanie historically come from slaughterhouse waste tissue, restaurant grease, expired meat from grocery stores and even entire carcasses from animals condemned at slaughterhouses, all susceptible to spoilage.

Oregon DEQ has an odor nuisance regulation which asks for voluntary implementation of an odor control solution. This does not have enough regulatory backbone for a company which could easily stall and continue operations.

Once the plant that NEXT proposes is built, Clatskanie could be known as the city along the Columbia River to avoid. The potential risk and irreparably damaged to our health and quality of life is extremely high.

Would you like this to be your legacy?

Stuart Gray
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A handwritten signature in black ink, appearing to read "Stuart Gray".

Sometimes, Life Stinks. So He Invented the Nasal Ranger.

By Winston Choi-Schagrin

- Published Jan. 13, 2022 NY Times, Updated Jan. 14, 2022

SOUTH ST. PAUL, Minn. — Chuck McGinley, a chemical engineer, stepped out of his car, eyed the smokestack of an animal processing plant rising above the treetops, and inhaled deeply. At first he smelled nothing except the faint, sweet fragrance of the nearby trees.

Suddenly, the wind picked up. “We have an oh-my-God smell!” Mr. McGinley exclaimed.

Immediately one of his colleagues pressed a Nasal Ranger to his nose. The 14-inch-long smell-measuring device, which looks like a cross between a radar gun and a bugle, is one of Mr. McGinley’s most significant inventions.

Using terms from one of Mr. McGinley’s other standard tools, an odor wheel, a chart akin to an artist’s color wheel that he has been fine-tuning for decades, the team described the stink. “Sour,” one person said. “Decay, with possibly some petroleum,” said another.

Then, as quickly as it had arrived, the smell disappeared. “The wind decided it was going to gift us only a short sniff,” Mr. McGinley said. “To tease us.”

Intuitively, humans know to avoid bad smells. Yet for a half-century, Mr. McGinley, 76, has returned again and again to society’s stinkiest sites, places very much like this one, in order to measure, describe and demystify smell.

Climate Fwd There’s an ongoing crisis — and tons of news. Our newsletter keeps you up to date. Get it sent to your inbox.

From his unconventional lab in a Minnesota suburb (it actually feels more like a ski lodge) Mr. McGinley and his son Mike have established an outsize influence over the measurement and understanding of odor. They have equipped scientists around the world with tools the elder Mr. McGinley invented, advised governments on odor regulations and empowered communities near smelly places to find a vocabulary for their complaints and a way to measure what their noses are telling them.

In many ways, the growing demand for Mr. McGinley’s services and instruments signals society’s heightened awareness of the power of odor and its potential to make people physically ill or diminish their quality of life. His inventions have taken on a powerful role in a movement

to recognize odor as a pollutant, not merely an annoyance, worthy of closer study and perhaps tighter regulation.

“If somebody said, ‘I have an odor problem, where should I go?’ That would be Chuck and Mike McGinley,” said Jacek Koziel, an agricultural engineer who studies odor at Iowa State University. Their methods provide policymakers and researchers with “hard evidence to make the case that odor is real and it affects people’s lives,” he said.

Of the human senses, smell is perhaps the most elusive yet powerful. In any given moment it can be a time capsule, jerking us back to a half-forgotten past. Or it can linger, triggering feelings that can’t quite be placed or described.

Intuitively, it provides valuable warnings. A whiff of milk can immediately tell you if it’s unsafe to drink. A sniff can tell you if your socks are clean. It has even become a diagnostic tool: Losing one’s sense of smell is a possible sign of Covid-19 infection. “Our nose is our early warning that something is not good,” Mr. McGinley said..

Though people have confidence in describing what they see and hear, and the objects they touch, we are often tripped up by smells. We speak largely in metaphor. A smell is often “like” something else: a rose, a wet dog, a grandmother’s house.

“Most people, when they smell a factory, they say, ‘It’s making me nauseous,’” Mr. McGinley said. But they are at a loss to describe precisely why.

Spending even a short time with him, one can’t help but pick up bits of odor-related trivia. Who knew that most of the air we’re inhaling at any given moment passes through just one nostril or the other, not both? Or that Oriental lilies could be so divisive: His wife loves the smell, he finds it “ugly.”

Listen carefully, though, and he often addresses debates that transcend his day-to-day work, escaping the realm of science altogether and drifting toward the metaphysical: Is the human aversion to putrid smells nature, or nurture, or both? How can one measure a perception? And how do you give people the confidence in their noses that they have in their eyes and ears?

What the Nose Can Tell Us

A smell is, quite simply, a result of chemicals in the air, and the human nose is far better at detecting them than it often gets credit for. Some of the most recognizable and potent odors, like hydrogen sulfide (think rotten egg) can be sensed at even the tiniest concentrations, like 1 part per billion.

“If you were to map out the distance from New York to Los Angeles, 1 part per billion would account for only a few inches along that route,” Dr. Koziel of Iowa State said.

That fact also captures the difficulty of regulating odors. At such vanishingly small concentrations, hydrogen sulfide is unlikely to pose a health risk. Nevertheless “it’s very

disruptive to people,” said Susan Schiffman, a clinical psychologist who has studied odor and taste for half a century.

Despite having the power to sicken, there are few laws in the United States to regulate odor. It makes up a significant portion of complaints to public agencies, including a quarter of the complaints to the federal Agency for Toxic Substances and Disease Registry. Yet there is debate over whether a smell can be inherently dangerous.

, but odor is a sensation. Because it can be experienced so differently by so many people, it puts us in a bind about how we regulate,” said Pamela Dalton, a psychologist who studies odor perception at the Monell Chemical Senses Center in Philadelphia. “Any industry has the potential for off-site emissions, even a cookie factory,” she added.

However, there is a growing body of medical literature supporting the notion that odor can cause physical health problems. Research shows that people living near malodorous sites can suffer physiological symptoms including headaches, burning eyes and nausea as well as mental health challenges like depression and anxiety.

The decision not to regulate odor at the federal level dates to the 1970s. In a series of surveys, federal agencies found that half of respondents believed odor was a serious problem. But the Environmental Protection Agency ultimately decided that it would leave it to local governments to create odor nuisance laws, akin to noise ordinances.

Today, around a dozen states regulate odor, and various local governments have set up ordinances. But the system is patchy, and it has left disputes to be dealt with in the courts.

Back in 1996, when Minnesota was deciding whether or not to repeal its odor regulations (it did), Mr. McGinley was called to testify. “The lawyers are going to love this,” he remembered saying. Not having rules would mean “a lot of lawsuits.”

He was right. In an example from 2018, a North Carolina jury awarded neighbors of Smithfield Foods \$473.5 million for “obnoxious, recurrent odors” originating from the company’s industrial hog farms. (In a statement, Smithfield said it had settled this and other similar cases for an undisclosed amount.)

But not everyone has the time or money to sue. And because smelly industries are often clustered in low-income areas, Mr. McGinley said, the problems can disproportionately affect minorities or poorer communities.

Alexander Graham Bell on Smell

For centuries, measuring smells had a reputation akin to alchemy. In a 1914 commencement speech, the inventor Alexander Graham Bell explained the importance of measurement to the advancement of science. Sound and light, he said, could be measured. But not smell.

“If you are ambitious to found a new science, measure a smell,” he said.

Olfactometers, invented more than a century ago, work on the principle that you draw in air through a small hole, then dilute it until a person can no longer smell it. The amount of dilution represented the strength of the odor. Later, the U.S. government developed portable olfactometers, or Scentometers, which were little more than an acrylic box with holes of differing sizes at one end: Holding it like a piccolo, you'd cover the holes with your fingers, lifting one at a time to get a reading. But they tended to be awkward to use.

Mr. McGinley's idea for his own devices came during a vacation in Hawaii. He saw the Haleakala volcano and had a breakthrough: The conical shape might work well for a smell-measuring tool. His Nasal Ranger, more intuitive than the acrylic boxes with finger holes, requires little more than taking a big sniff and adjusting a dial until you no longer smell it.

"The Nasal Ranger is quantum leaps better than the original Scentometer," said Dr. Dalton of the Monell Center. Scientists and start-ups are now working to develop electronic noses capable of measuring and identifying odors just as an actual nose can. But the technology isn't there yet.

Mr. McGinley in his Minnesota headquarters. "Our nose is our early warning," he said. Credit...Caroline Yang for The New York Times

Mr. McGinley came to odor by accident. After college he got an entry level job at the Minnesota Mining and Manufacturing Company, now known as 3M, where he had a tiny role in the department responsible for inventing scratch-and-sniff technology. "A very, very, very small part," Mr. McGinley said.

But the experience proved fateful a few years later when he interviewed for a job enforcing dust regulations at the Minnesota Pollution Control Agency. "When I mentioned the scratch-and-sniff, the interviewer said, 'The odor position pays more,'" he recalled.

With young children to care for, the bigger paycheck sounded appealing. He was hired to be part of the agency's new odor inspection team, touring Minnesota's stinkiest places. "And that's where I accidentally fell into the business of knowing more than the average person about smell," he said.

Several years later, on a Sunday morning in June 1975, came another turning point.

From a Desperate Plea, a Career

That morning, Mr. McGinley found two farmers at his front door. The couple had driven hours across the state to beg for his help. Smells from a nearby animal processing plant were wreaking havoc on their lives and depriving them of sleep, the couple told him. They suffered headaches and nausea. Their throats were burning. But doctors didn't believe them. Nobody believed that a smell could be ruining their lives and livelihood.

"I realized, with that incident, that odors were more than just smell," Mr. McGinley said.

When he and his wife started their air-quality business in the 1980s from their kitchen table, almost all of his clients were sewage treatment plants and other smelly sites. But word spread and eventually he expanded to his current facility, a former bank building.

The lobby of his laboratory, St. Croix Sensory, features wooden rafters and a big stone fireplace, giving it the ski-lodge vibe. The board game What's That Smell ("The Party Game That Stinks") is on one of the side tables, as are copies of books like "Smellosophy: What the Nose Tells the Mind."

In recent years, Mike, who is also a chemical engineer, has taken over the lab, expanding into more testing work for food and consumer-goods companies, as well as concocting recipes for immersive theater troupes and museums.

For a local theater production, he created 22 smells, including one to mimic an old woman's apartment ("perfume and old-cedar smell"). When a detergent company wanted to test the smell of freshly laundered towels that had previously been mildewed, it couldn't spend six months waiting for towels to naturally mold. So Mike developed his own mold smell.

This past August, a team of the McGinleys' assessors, a group of mostly women hired and trained to categorize and describe smells, gathered at the laboratory to conduct a test for a cat litter brand. They worked in a room lined with stainless steel boxes, each with a small hole designed for "nasal masks," another McGinley invention. Inside the boxes were different litter formulations, and a control (sand), all freshly deposited with urine and poop that Mike had sourced from feline-owning friends.

The assessors cycled through the boxes, inhaling deeply and noting characteristics. After several hours, they broke for lunch, then spent the afternoon sniffing hand sanitizers.

"Now I have such a different awareness" of the presence of smells, often unnoticed, that surround all of us, said Erika Schultz, one of the assessors. Sometimes, when opening a package or walking down the aisle of a grocery store, she said, she'll note the smell and think back to the odor wheel.

It's precisely this kind of awareness that Mr. McGinley has tried to instill for the past half-century. "We go through our life with the mute button on our nose," he said. "Turn off that mute button. Listen with your nose."

Winston Choi-Schagrin is a reporter covering climate and the environment. [@winstoncs](https://twitter.com/winstoncs)