The water watchdog

Water treatment and corrosion expert Marc Edwards made headlines recently for his work to uncover and address the elevated lead levels in drinking water in Flint, Michigan. Edwards says he originally chose to become an environmental engineer because it “sounded like a great, altruistic career.” Altruism has led the professor at Virginia Polytechnic Institute and State University in Blacksburg to some risky professional decisions. He has taken on the U.S. Centers for Disease Control and Prevention and the Environmental Protection Agency for failing to intervene effectively in Flint and, a decade earlier, in Washington, D.C., when it was experiencing its own water crisis. This interview has been edited for clarity and brevity.

Q: Why did you pursue water safety research?
A: What gives me joy is creating new knowledge, especially knowledge that helps normal people. I’ve always gravitated toward the work that had the biggest real-world impacts and was being overlooked. My research on building plumbing systems has profound health and economic implications, but no one wanted to take responsibility for the issue.

Q: When you’ve discovered problems, how have you gotten them addressed?
A: Science by itself is powerless when you’re dealing with government agencies. I had to cross the line and become an activist, filing Freedom of Information Act requests and working with politicians and people on the ground. You have to reach this critical mass where you can put enough pressure on these agencies to make them take action, and you will never do that with science alone.

If you’re not going to fight to the bitter end, don’t get started. You have to decide: Are you willing to do whatever it takes to see this through, and can you accept the likelihood that you are going to fail? The odds are against you. I’m one of the lucky ones. It makes me so humble to think about all of those who put their professional lives on the line and whose careers were destroyed.

Q: How do you engage in activism as a last resort, after every scientific path has failed?
A: I engage in activism as a last resort, after every scientific path has failed. Since I personally find activism distasteful, I forgive the academics who also view it negatively. The majority of my colleagues are indifferent or bemused, focused on their own problems and getting their next research dollar.

Q: How does the current academic culture affect research like yours?
A: We have to address the pressures to publish and get funding so that we can ask ourselves whether our research is doing good for the world. I’m very fearful of the perverse incentives of academia right now. We spend all our time sucking up to funding agencies. We’re all such cowards—and with good reason, because the system does not reward good heroic actors. At the same time, because cowardice is the norm, it creates a tremendous opportunity for those who want to go this path, because no one else is doing it and there is so much injustice.

We are still attracting some great people who I firmly believe are ethical, altruistic scientists, but at some point they might become the minority. My biggest fear is that the culture of academia is going to get to the point where these scientists ask, “Can I have a career without cutting corners or cheating?” I don’t want us to get to the point where I might have to tell young people, “I’m not sure that you can.”

Q: What motivates you to carry on despite the challenges?
A: I am the most optimistic person in the world. You have to be optimistic to think that you can change things. It’s not blind optimism; it’s about seeing something that’s wrong and being unwilling to accept it.

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