I aimed to do research, with expanding our understanding as my goal. But when I earned my science degree and it came time to look for a job, it was clear that academic positions were scarce. I expanded my options by looking for work in industry.

Given my training, jobs dealing with environmental issues seemed a natural focus. The year was 1970; Congress had just created the Environmental Protection Agency (EPA) and was working on new laws to reduce air and water pollution. I started interviewing with firms that had research centers. Then I received the urgent call from the headhunter (a role I hadn’t known existed). A large minerals company had suddenly woken up to a world concerned about pollution—and had come to realize that it needed someone to help evaluate and manage the risks posed by its operations. I had never imagined myself in such a role, but I weighed the pros and cons and took the offer. We traveled cross-country. It was an adventure: the family’s first trip west of Pittsburgh, Pennsylvania.

Early on, at a cocktail party, I met the senior vice president in charge of mining operations. His job, he told me, was “to dig,” and my job was to help him avoid problems. It turned out there was plenty of science to do. Air pollution from mineral processing was an enormous issue; the search was on for ways to manage and reduce the associated risks. That meant identifying acceptable human exposures and effective, affordable controls. Getting the science right, however, was only a first step to achieving real-world results; I also had to persuade company executives. Luckily, that vice president became an ally: Not once did he turn down my requests to take action based on science.

Over the next 4 decades, my scientific background allowed me to expand my work. I moved eight times, helping firms manage health, safety, and environmental issues and the associated financial concerns. I gained unexpected influence: Who would have guessed that an atmospheric physicist would have the power to shut down one of the world’s largest mining pits when ash falling from the 1980 eruption of Mount St. Helens, in Washington state, threatened both workers and expensive equipment? With one phone call, I stopped the mining for 2 days.

Over time, I learned that reducing risks meant we had to overcome big gaps in scientific understanding, both within industry and among the public. I studied business risks and discovered that science and technology often play an outsized role in finding solutions. And so does setting ambitious goals: Early on, I doubted industry could meet some of the aggressive targets that EPA set for reducing air pollution, but I ultimately saw these goals spur innovation and creative solutions that led to setting even higher standards.

My quest for scientific understanding has taken a form I never anticipated in graduate school. I still want to understand the world around me, but today I do so by using science to manage risk—a richer, broader, and more relevant role than I ever envisioned. I am now well past the old-fashioned retirement age, but there is much yet to explore, and I continue to apply my scientific skills as a consultant to industry. I’ve gained an appreciation for the need to balance risks—in our careers, in our impact on the environment, and in our uses of science. But I’m glad I took that first big risk, which opened a whole new world for me.

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A risk worth taking
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