

seeing the light

by Alan S. Brown

**For nearly 200 years, Rochester, N.Y.,
has been associated with optics.**

Bausch & Lomb brought over skilled German lens grinders to make monacles and eyeglasses in the 1850s. Kodak employed those skilled lensmakers to mass produce cameras starting in 1888. Xerox emerged from Haloid Photographic, a company that used its knowledge of Kodak film chemistry to make photographic paper.

An infrastructure of optics: Above, University of Rochester's Laser Energetics Lab. Right, an LED array illuminates medical specimens.

How pluck, luck, and perseverance helped Rochester's optics industry get its groove back.

By 1995, it was clear

those companies were faltering. Bausch & Lomb had exited most lens businesses in the 1980s. Xerox had lost its stranglehold on the domestic market for copiers in the 1970s and was diversifying out of Rochester.

Kodak, which employed 60,000 people around Rochester in 1980, was already downsizing as it struggled with foreign competition and poor business decisions. By 2014, it would employ fewer than 5,000 people in the Rochester area.

Rochester could have been another dying Rustbelt city. Instead, led by smaller firms, the city's optical industry reinvented itself and preserved the superb technical training program that was the lifeblood of the industry.

It took persistence, preparation, a bit of luck, and a new way of seeing themselves. It began when Chris Cotton walked into Tom Battley's office in 1995 and asked, "What do you know about clusters?"

Cotton, an optics designer, had recently started his own company. Battley was still settling into his job as director of economic development for Monroe County, which includes Rochester.

At that point, the concept of clusters was only

a few years old, but Battley had been reading up. Clusters happen when an industry congregates in a region, like computer technology in Silicon Valley and finance on Wall Street. Ecosystems of suppliers, schools, and specialized services sprout to serve it. As people and ideas circulate, they spawn new opportunities and businesses that make the cluster even more competitive.

Cotton wanted to create a group that would take advantage of Rochester's optics and photonics cluster. That included the big firms like Kodak, but also the smaller firms that Battley was just getting to know. Battley had learned about them when he visited Rochester Photonics on his first field trip as director of economic development.

"I came from a manufacturing background and had always worked with engineers, but I had no idea what these guys were doing," Battley said. "They were making polymer surfaces engineered at the micron level, and I couldn't even understand why people would need something like that."

The company's owner, Michael Morris, told Battley that Rochester had many firms like his that specialized in one piece of the manufacturing process. Battley found more than 50, making products as diverse as night vision goggles and lenses for manufacturing semiconductors. Many were hiring and expanding.

The city also had strong optics programs at its schools. Morris, for example, had been a researcher at University of Rochester's Institute of Optics, the nation's first optics program. Rochester Institute of Technology offered top Ph.D. programs in imaging and color science. The city hosted two federally funded laboratories, one for lasers and the other for optics manufacturing. Monroe Community College had a program to train optical technicians.

It was the very definition of a cluster, but the companies that drove it were beginning to fall apart.

