

Narinder S. Kapany, ‘Father of Fiber Optics,’ Dies at 94

A physicist and entrepreneur who cut an imposing figure, he did more than anyone to make optical research a priority in government and corporate budgets.



By Clay Risen

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When Narinder S. Kapany was in high school in the 1940s in Dehradun, an Indian city in the Himalayan foothills, his science teacher told him that light travels only in straight lines. By then he had already spent years playing around with a box camera, and he knew that light could at least be turned in different directions, through lenses and prisms. Something about the teacher’s attitude, he later said, made him want to go further, to prove him wrong by figuring out how to actually bend light.

By the time he entered graduate school at Imperial College London in 1952, he realized that he wasn’t alone. For decades researchers across Europe had been studying ways to transmit light through flexible glass fibers. But a host of technical challenges, not to mention World War II, had set them back.

He persuaded one of those scientists, Harold Hopkins, to hire him as a research assistant, and the two clicked. Professor Hopkins, a formidable theoretician, provided the ideas; Dr. Kapany, more technically minded, figured out the practical side. In 1954, the pair announced a breakthrough in the journal *Nature*, demonstrating how to bundle thousands of impossibly thin glass fibers together and then connect them end to end.

Their paper, along with a separate article by another author in the same issue, marked the birth of fiber optics, the now-ubiquitous communications technology that carries phone calls, television shows and billions of cat memes around the world every day.

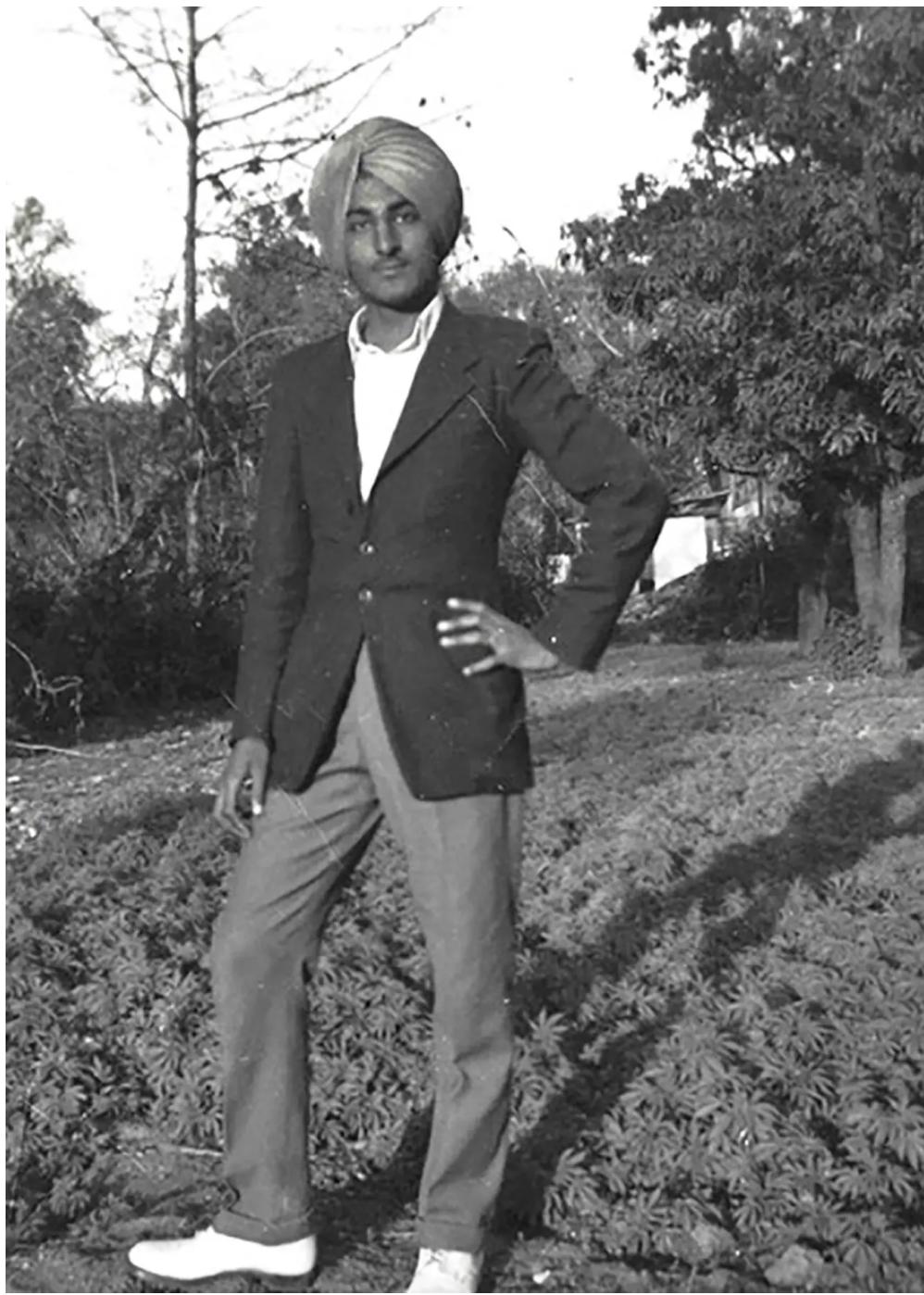
In later years, journalists took to calling Dr. Kapany the “father of fiber optics,” and several even claimed that he had been robbed of the 2009 Nobel Prize in Physics, which instead went to Charles Kao for his own groundbreaking work in fiber optics.

That claim re-emerged after Dr. Kapany died on Dec. 3 in Redwood City, Calif., at 94. His son, Raj Kapany, confirmed the death but did not provide a cause.

Whether Dr. Kapany’s scientific contributions stand alongside Dr. Kao’s can be debated, but his work as an intellectual evangelist for the burgeoning field of fiber optics is undeniable.

“He was a pioneer,” the science journalist Jeff Hecht said in an interview, an “enthusiastic promoter” of a technology that long seemed more like science fiction than fact. As an academic researcher, and later as the chief executive of one of the first venture-capital-backed companies in Silicon Valley, Dr. Kapany relentlessly pushed fiber optics onto corporate and government research budgets, ensuring that the breakthroughs that he and Professor Hopkins made in the 1950s would bear fruit in the 1960s.

According to Mr. Hecht’s 1999 history of fiber optics, “*City of Light*,” between 1955, when Dr. Kapany received his doctorate, and 1965, he was the lead author or co-author of 56 scientific papers — an astounding 30 percent of all research published in the field during that decade. He wrote the first book on fiber optics and, in a 1960 cover article he wrote for *Scientific American*, even coined the term itself.



Dr. Kapany as a young man in the 1940s, when he first started trying to figure out how to bend light. via Kapany family

Narinder Singh Kapany was born on Oct. 31, 1926, in Moga, a town in Punjab, in northwest India, and raised in Dehradun, about 200 miles to the east. His father, Sundar Singh Kapany, worked in the coal industry; his mother, Kundan Kaur Kapany, was a homemaker. After graduating from Agra University (now Dr. Bhimrao Ambedkar University), he worked for a government munitions factory in Dehradun before moving to England.

Despite his love for research, Dr. Kapany had never planned on becoming an academic scientist. He had originally moved to Britain for an internship at an optics firm in Scotland, to learn skills he could use in starting his own company back in India. But the opportunity to work with Professor Hopkins, a towering figure in the world of optics, was too tempting to resist.

Their relationship, however, though fruitful, proved unstable: Both were physically imposing men with outsize personalities, and they fell out soon after publishing their seminal paper in *Nature*. Professor Hopkins accused Dr. Kapany of overstating his contribution; Dr. Kapany retorted that only he was able to turn the professor's chalkboard musings into reality.

In 1954, soon after the *Nature* article appeared, Dr. Kapany married Satinder Kaur, like him an Indian native, who was studying dance in London. The next year the two sailed to New York after he was offered a job at the University of Rochester and a consulting contract with Bausch & Lomb, the eye care company.

Two years later, after the birth of their son, Raj, the Kapany family moved to Illinois, where Dr. Kapany took a job teaching at the Illinois Institute of Technology and where their daughter, Kiran, was born.

Satinder Kapany died in 2016. Dr. Kapany is survived by his two children and four grandchildren.

Dr. Kapany cut a dashing figure around the Chicago social scene — his jackets custom made and slimly cut, his beard knotted tight to his chin and his mustache manicured “like David Niven’s,” his son said, referring to the British actor.



Dr. Kapany with members of the Palo Alto Chamber of Commerce at the opening of his company, Optics Technology, in 1960. via Kapany family

But Dr. Kapany was growing restless in academia, and in 1960 he moved his family to California to start a new company, Optics Technology, to commercialize his research. He based it in Palo Alto, then just emerging as a tech hub, and received funding from Draper, Gaither & Anderson, one of the first venture-capital firms on the West Coast.

As president and chief of research at the company, Dr. Kapany was focused on product development; to run the business side, the board hired Thomas J. Perkins, a young business executive who would go on to become a Silicon Valley eminence as co-founder of the venture capital firm Kleiner Perkins.

Once again, Dr. Kapany worked closely with a similarly forceful personality, and once again there were fireworks. The two men's epic, sometimes alcohol-fueled fights were ostensibly about where to take the company, whether to move products to market quickly — Mr. Perkins's plan — or to focus on government-funded research and development.

But there was clearly something deeper and more fundamental about their antagonism. It was "a mutual hate for each other of near biblical proportions," Mr. Perkins later wrote.

"I told anyone who would listen," he added, "that I wanted engraved on my tombstone, 'I still hate him.'"

Mr. Perkins eventually demanded that the board choose between them. They chose Dr. Kapany.

Dr. Kapany took the company public in 1967, but it was already sinking under the weight of poor sales and a strained budget. He left that year and, in 1973, founded a new company, Kaptron, which made fiber optics equipment. After later selling the business, he founded yet another company, K2 Optronics, with his son in 1999.

Even as he filled out his career as a serial entrepreneur, Dr. Kapany never fully left academia: He taught at the University of California, Santa Cruz, from 1977 to 1983, and he later endowed chairs at several University of California schools in optics and in Sikh studies.



Dr. Kapany in an undated photo. In his later years he endowed chairs at several University of California schools in optics and Sikh studies. via Sikh Foundation

Dr. Kapany was a practicing Sikh and fiercely proud of his heritage. He amassed one of the world's largest collections of Sikh art and sponsored rooms to feature it in museums around the country. "My father became convinced that the world at large should know who the Sikhs are and that the Sikh people themselves should not forget who they are as they emigrate to other lands far from their original roots," his daughter said.

But he was also aware of how exotic he seemed to some as an Indian in early postwar America, before the Immigration and Nationality Act of 1965 opened the door to millions of Asian immigrants. Whenever he demonstrated fiber optics to visitors, he called it his "Indian optical rope trick."

And he adopted an American accent, retaining just enough of his Indian and English tenor to make him stand out — an aptitude for code-switching that, his son said, contributed to his success in both the science lab and the boardroom.

"He used that turban like a lethal weapon," his son said. "When you see a guy who looked like that and who spoke like J.F.K., you're not going to forget him."