

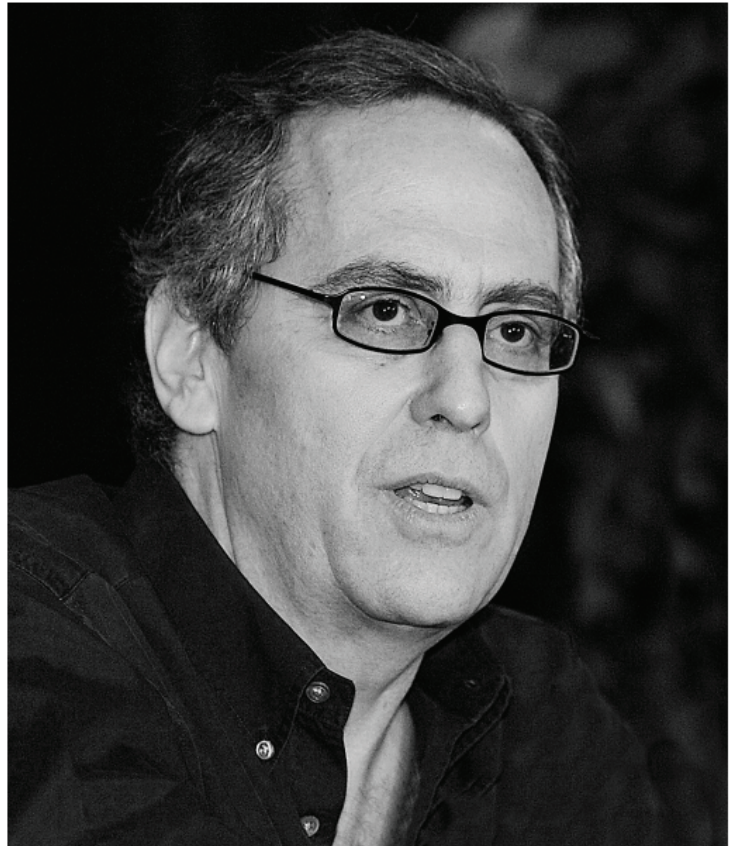
NEW YORK

select/all

How a Misfit Group of Computer Geeks and English Majors Transformed Wall Street

In the 1980s, a quiet hedge fund located above a Marxist bookstore launched a revolution that would change finance (and give us Amazon).

By Michelle Celarier



BEGINNINGS *In celebration of New York Magazine's 50th anniversary, this weekly series, which will continue through October 2018, tells the stories behind key moments that shaped the city's culture.*



In the summer of 1988, the hedge-fund manager Donald Sussman took a call from a former Columbia University computer-science professor wanting advice on his new Wall Street career.

"I'd like to come see you," David Shaw, then 37 years old, told Sussman. Shaw had grown up in California, receiving a Ph.D. at Stanford University, then moved to New York to teach at Columbia before joining investment bank Morgan Stanley, which had a new secretive trading group that was using computer modeling. A neophyte in the ways of Wall Street, Shaw wanted Sussman, who founded the investment firm Paloma Partners, to look at an offer he had received from Morgan Stanley's rival, Goldman Sachs.

Sussman's career has been built on recognizing and financing hedge-fund talent, but he had never encountered anyone like David Shaw. The cerebral computer scientist would go on to become a pioneer in a

revolution in finance that would computerize the industry, turn long-standing practices on their head, and replace a culture of tough-guy traders with brainy eccentrics — not just math and science geeks, but musicians and writers — wearing jeans and T-shirts.

A harbinger of the techies who would storm Wall Street in a decade, this new generation of hedge-fund introverts would replace the profanity-laced trading rooms of the 1980s with quiet libraries of algorithmic research in every corner of the markets. They would also launch an early email system and look into the prospect of online retailing, leading one of Shaw's most ambitious employees to take the idea and run with it. Yes, the seeds of Jeff Bezos's Amazon were planted at a New York City hedge fund.

Thirty years ago, all of that was yet to come. All Shaw told Sussman at the time was, "I think I can use technology to trade securities."

Sussman told Shaw the Goldman offer he had received was inadequate. "If you're confident this idea is going to work, you should come work for me," Sussman told Shaw. The offer led to three days of sailing in Long Island Sound on Sussman's 45-foot sloop with the

financier, Shaw, and his partner, Peter Laventhol. The two men — without disclosing many details — “convinced me they believed they could generate models that would identify portfolios that would be market-neutral and able to outperform others,” Sussman remembers. In lay terms, the strategy would make a lot of money without taking much risk.

Hedge funds were still fairly primitive, and while they were already using mathematical formulas to capture small price disparities in such esoteric instruments as convertible bonds — then a dominant hedge-fund strategy — Shaw was planning to take the math to a whole new level.

Paloma Partners agreed to invest \$30 million with D.E. Shaw. Since then, the company has grown into an estimated \$47 billion firm, earning its investors more than \$25 billion — as of the end of 2016, tied for the third biggest haul ever. It has made millionaires out of scores of employees and a multibillionaire out of Shaw, who stepped back in 2001 from day-to-day operation of the firm to start D.E. Shaw Research, which conducts computational biochemistry research in an effort to help cure cancer and other diseases. Shaw is estimated by *Forbes* to be worth \$5.5 billion, and remains as elusive as ever: He declined to speak to *New York* for this article.

Meanwhile, the quantitative revolution D.E. Shaw helped spawn has become the biggest trend in hedge funds today, capturing some \$500 billion of the industry’s more than \$3 trillion in assets and dominating the top tier. Seven out of the top ten largest funds are considered “quants,” including D.E. Shaw itself. One of those seven quants, Two Sigma, was started by D.E. Shaw veterans. But the changes D.E. Shaw wrought haven’t just been felt in hedge funds. Shaw spit out orders accounting for an estimated 2 percent of the trading volume of the New York Stock Exchange in its early years, and thanks to it and other emerging quants, the NYSE was forced to automate. By the end of the 1990s, electronic stock exchanges were driving trading prices down, and by 2001, stocks began to be traded in penny increments, instead of eighths. These changes made it cheaper and easier for all investors to get into the game, leading to an explosion in trading volume.

From the beginning, D.E. Shaw was a quirky enterprise, even for a hedge fund. The first office was far from Wall Street, in a loftlike space above Revolution Books, a communist bookstore on 16th Street, in what was then a still fairly seedy Union Square. The office, about 1,200 square feet, was bare, with freshly painted walls and a tin ceiling. But it boasted two Sun Microsystem computers — the fastest, most sophisticated computers then in vogue on Wall Street. “He needed Ferraris; we bought him Ferraris,” says Sussman.

As Shaw sought to build his newfangled firm, he didn’t want to hire people steeped in Wall Street’s ways. Likewise, those who joined D.E. Shaw typically disdained the notion of working on the Street. “I thought to myself, *No way*,” says Lou Salkind, remembering a call he received from Shaw in the summer of 1988 asking him if he would be interested in joining his start-up. Salkind was finishing his Ph.D. in computer science at New York University and on the hunt for a job,

but Wall Street turned him off. “The year before, I’d been recruited by a few firms on Wall Street. I was skeptical I would like anything in finance.”

Lacking any other job offers, he agreed to meet with Shaw. After all, his hedge fund’s office was about ten blocks away from NYU. The two men went to lunch at nearby Union Square Cafe, where they got to talking about gambling, one of Salkind’s passions. Born in New York City, Salkind had learned to count cards at an early age and developed a horse-betting system at age 13. He had no idea such mathematical skills would come in handy at a hedge fund. “I had a blast,” he recalls.

When they returned to the office, Shaw began laying out his vision. “What I want to build here is a company at the intersection of technology and finance,” he told Salkind. As with Sussman, Shaw wouldn’t tell Salkind much more than that, but he did speculate that his firm might be able to replace Wall Street market makers: “They prepare to buy at the bid, hold, and sell at a higher price. The difference is what you try to capture. We could do a lot of this stuff automatically with computers,” he told the fellow computer scientist.

“Oh, you’re like a bookie. That’s the vig,” said Salkind, who was immediately sold on the job. Salkind, who retired in 2014, became one of the first employees of D.E. Shaw.

In the hedge fund’s early days, Sussman would visit the office weekly. “Once they started trading, they started making money out of the box,” he remembers. “These were very serious folks. I used to go and sit next to them watching them trade. They didn’t miss a goddamn thing,” he recalls. “The atmosphere of the place was unlike any other investment firm. It was like going into the research room in the Library of Congress.”

In 1990, Anne Dinning, another NYU computer-science Ph.D. who knew Salkind from his days there, struck up a conversation with Shaw at a party at Salkind’s home. “I didn’t even know what a hedge fund was,” she recalls, but agreed to interview for a job at Shaw “as a lark,” and ended up joining, despite her initial desire to become an academic.

“My first job was to work on some forecast of Japanese equities,” she says. Dinning didn’t have to know anything about the companies or the Japanese stock market. The computer would figure it all out. In the early days, she would run 24-hour simulations, waking up every six hours in the night to check on their progress. Once the algorithms were ready for live trading, “I’d look at the P&L every day and see if it’s doing what I thought it would. It was like an experiment. And I could see the immediate results,” says Dinning. As the firm expanded, Dinning ended up running both the London and Tokyo offices of D.E. Shaw, and both she and Salkind became members of an unorthodox six-person executive committee that ran the firm in a surprisingly effective consensus manner after Shaw stepped back from its day-to-day management. (He is still involved in strategic decisions.)

While D.E. Shaw was minting money, David Shaw’s vision didn’t stop with creating a quantitative hedge fund. Technology, he knew, had the

capacity to transform our everyday lives. As an academic, Shaw had already used the Arpanet, the precursor to the internet, to communicate with other scientists. That helped inspire one of the first free internet-based email systems, Juno. With equity capital from D.E. Shaw, the service launched in 1996, went public, and eventually merged with a competitor.

Free email was only one of Shaw's early initiatives, explains Charles Ar dai, who joined Shaw in 1991 with a degree in English (specifically, British Romantic poetry) from Columbia, one of the first of many unconventional hires who didn't have a background in the hard sciences.

"He went to one of my co-workers and said, 'I think people will buy things on the internet. They're going to shop on the internet. What's more, they're not just going to shop.' This, I swear to you, is what David said: 'Not only will people shop, but when they buy something — let's say they buy a pipe for watering their garden — they're going to try a pipe, and they're going to say, this pipe is good, or this pipe is bad, and they're going to post reviews, and other people will see them and pick the right instead of the wrong pipe, because somebody else told them, I like this pipe. I don't like that pipe.'"

Jeff Bezos, who had joined in 1990, was in charge of the online retailing project at D.E. Shaw. He became so enthused about the possibilities that he asked Shaw if he could take the idea and run with it on his own. Shaw agreed, and Amazon was soon born. (Shaw didn't take a stake in the now-\$620 billion company.)

Upon graduating from Columbia, Ar dai says he had been so surprised to receive a letter from Shaw asking him to apply for a job that he thought "it must be a scam." Soon after the 22-year-old joined, he was tasked with setting up Shaw's recruiting department. "We've filled the company with everything from a chess master, to published writers, to stand-up comedians — people who really excel in one field or another — we had an Olympic-caliber fencer, and at one point we had a demolitions expert," he says. One of D.E. Shaw's best traders had tattoos all over his arms and couldn't get hired anywhere on Wall Street. Another was a trombone player who eventually left to create a music program in the Bronx. (Ar dai also has other interests; he is the founder and editor of *Hard Case Crime*, a line of pulp-style paperback crime novels.)

D.E. Shaw's hiring process may have a far-flung reach, but by no means is it egalitarian. In fact, its recruiting letters once started with an assertion that the firm is "unapologetically elitist." Once eyebrow-raising, the hedge fund's hiring practices are no longer abnormal, as they have been adopted by giant tech firms like Google, and of course,

Amazon, which even uses the same grading system as D.E. Shaw when interviewing candidates.

The casual dress code embraced by D.E. Shaw has also become de rigueur at tech giants. Though viewed as shocking in Shaw's early years, such attire is also common at many New York hedge funds today. "One of the goals at D.E. Shaw has always been 'let's remove all of the unnecessary constraints,' for example, why require people to wear neckties?" explains Ar dai. The crew at D.E. Shaw was so disheveled that, according to Shaw lore, one disgusted white-shoe law firm moved out of a midtown office tower that the hedge fund occupied — in protest. These days, David Shaw, whose research project is housed across the street from the hedge fund, is often seen wearing a black T-shirt and cargo shorts — even in the middle of winter.

For all of its attempts at modesty, D.E. Shaw has come a ways from its years above a communist bookstore. With more than 1,000 employees, in 2010 the firm moved into new offices at 1166 Sixth Avenue (its fourth New York City home) whose austere reception area has a ceiling and walls covered with screens designed to look like computer punch cards.

In 2015, former Google executive chairman Eric Schmidt, a longtime investor in D.E. Shaw's hedge funds, took a 20 percent stake in the firm, buying out bankrupt Lehman Brothers' earlier investment. These days, there's so much money chasing quants that the earlier strategy of betting on inefficiencies in public equity markets has become less profitable. Innovator D.E. Shaw has moved from its beginnings in equity arbitrage into other arenas like distressed debt and emerging markets, where it uses its quantitative techniques to help give it an edge while relying on humans, not computer models, to make trading decisions.

As the firm gets ready to celebrate its 30th anniversary, David Shaw has not disappointed his first investor, Donald Sussman, whose firm eventually had hundreds of millions of dollars invested with D.E. Shaw. "I never doubted him for a minute," he says. "I never envisioned that D.E. Shaw would be \$47 billion, but I did envision how David would change the world of finance."

<http://nymag.com/selectall/2018/01/d-e-shaw-the-first-great-quant-hedge-fund.html>

This document is provided for your information only and does not constitute investment advice or convey an offer to sell, or the solicitation of an offer to buy, any securities or other financial products. Furthermore, the D. E. Shaw group does not endorse any information, beliefs, and/or opinions discussed in the document and makes no representation as to their accuracy or adequacy. Please note also the date of the document as the information contained in it has not been updated for any information that may have changed.

No assurances can be given that any aims, assumptions, expectations, and/or goals described in the document will be realized or that the activities described in the document did or will continue at all or in the same manner as they were conducted during the period covered by the document.

This document has been reprinted with permission from *New York Magazine*.