

Profiles in Leadership #8

Tom Scholz: Engineering a Unique Rock Sound

Donald Thomas Scholz, Massachusetts Beta '69, entrepreneur of modern music

by Alan S. Brown

dON'T EVEN THINK about calling Tom Scholz an overnight sensation. "When people say I'm a Cinderella story, it's because they don't know about the six years of drudgery and lost savings I put into preparing myself for that very remote possibility of success," he replied.

Scholz's story sounds like so many other engineering entrepreneurs: He graduated MIT and joined a major corporation. Instead of buying a house, he poured his savings into equipment and prototypes. He faced rejection after rejection before lining up backers, who later tried to assert control.

The only difference between Scholz and most other engineers is that Scholz is a musician and his product is the band, Boston. When Boston's first album broke in 1976, it shot Scholz, who had not played live shows in years, straight to the top. The album went on to sell 17 million copies, making it the best-selling debut album by any artist up until that time.

With wave after wave of lavishly textured guitar solos, surprising harmonies, and unusual sounds, Boston rang out fresh and new. It was a triumph of Scholz's musicianship—and his inventive engineering.

"There wasn't a single note on those recordings that wasn't played through gear that intentionally altered the sound in new and unique ways," he recalled.

Born in 1947, Scholz grew up in a blue collar neighborhood in Toledo, OH, and later moved to the city's ritziest suburb. He describes his parents

What does it mean to be a leader? In this series "Profiles in Leadership," Tau Beta Pi is exploring that essential question through the lives of member engineers who attained leadership positions in their fields.

as "brilliant." His father left engineering school after two years to design modular homes. His mother graduated valedictorian of her high school at 16.

Like many engineers, Scholz was always taking things apart or building them. He was hooked on engineering the first time he saw someone flying a radio-controlled airplane.

"I didn't have a chance of getting anything like it, but I took all my money and bought balsa wood so I could make models of those airplanes. I was interested in anything that could fly, float, or move," he recalled.

This showed up in his choice of sports. At 6' 5½", Scholz played varsity basketball because he liked getting airborne and dunking. When college athletics eliminated the dunk, he left the MIT team.

Although he was a basketball player, Scholz never aspired to popularity.

Liked Working by Himself

"Like all high school kids, I wanted to be part of the group. I also really liked working on stuff by myself. I enjoyed working with people who shared a specific

interest. But I was always trying to do something to reach some goal," he remembered.

At MIT, that goal was survival. The competition was ferocious. Scholz remembers viewing everyone's SAT scores during freshman orientation.

"The English scores formed a Bell curve skewed to the right. The math scores rose asymptotically to 800," he said.

Scholz struggled, received little feedback,



Tom Scholz, who studied classical piano as a child, in concert. Photo: Kamal Asar

and felt he was near the bottom of his class. He applied to Case Institute of Technology so he could transfer if he flunked out. He was shocked to end his first semester with a GPA of 4.8 out of 5.0.

As he fell into MIT's rhythms, he began exploring an emerging interest, rock and roll. Scholz's parents were both musical, and he grew up listening to classical records, attending orchestral concerts, and studying classical piano.

Popular music left him flat until his senior year of high school, when he heard the Kinks, Yardbirds, Animals, and other British Invasion bands.

"I liked the high energy and distorted guitars. It reminded me of live symphonies, because they had that same power. I like that sort of animalistic, brute force. That's what got me playing in bands. We would play for anyone who would put up with us," Scholz said.

Music and engineering came together at Scholz's first job. He graduated MIT with a master's degree in mechanical engineering in 1970 and joined nearby Polaroid, a company best known for cameras that developed photographs instantly.

Scholz loved the work: "I couldn't believe anybody would pay me to do this, and I was working only 40 hours per week after doing 80 to 100 hours at MIT. It was exciting to build things, especially the way Polaroid did it. There was not a lot of calculation, because it was faster to make a part, see if it broke, figure out why, and then make another."

Polaroid assigned him to help develop the sound component of an instant movie film system.

"That was a stroke of luck because it taught me how to put together an inexpensive multitrack studio in my basement," Scholz recalled.

Increasingly Frustrated

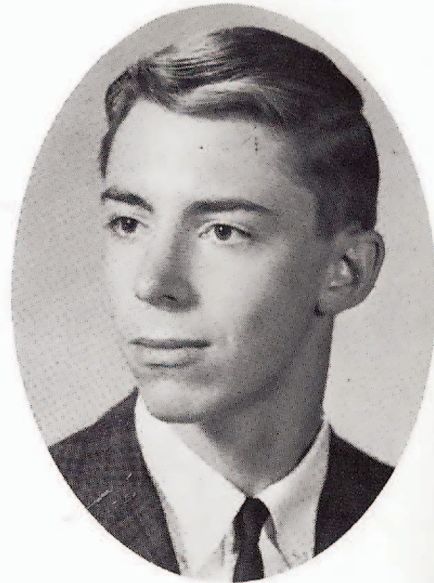
It came at a time when Scholz was increasingly frustrated as a musician.

"I tried to put music on stage with other musicians and it didn't work. Everyone does the best they can, but when it's your music and you have a vision, it's difficult to get others to see or understand what you are looking for. As I became more fluent at multitrack recording, I realized this was holding me up," he explained.

This was in 1974. Scholz, a senior product design engineer, still didn't own a home. Instead, he rented and plowed all his money into his basement studio, where he was inventing new electronics to make the sounds he could hear only in his head.

His doubler, for example, delayed a sound by 10 to 20 milliseconds and changed its pitch slightly. Today, such devices are common. Then, companies were struggling with how to vary the clock on their digital devices. Scholz took a different approach: he started with an analog chip and drew upon his experience with simple physics to alter the clock rate in a way that sounded natural.

"This was my attempt to create a second performance of my original performance in stereo in a different speaker," he said.



DONALD THOMAS SCHOLZ

Basketball 1, 2, 3, 4; Class President 4; Council on World Affairs 3; National Honor Society 3, 4; Varsity Club 3, 4.

This Leader In Brief

Full professional name: Tom Scholz.

Current position: Founder, Boston.

Birthplace: Toledo, OH, 1947.

Highest degree: M.S., Mechanical Engineering, Massachusetts Institute of Technology, 1970.

Major career highlights: Engineer, Polaroid, 1970; senior product design engineer, Polaroid, 1974; founder, Boston, 1976; founder and president, Scholz Research & Development, developer of Rockman guitar amplifiers, 1980-1995; founder, DTS Charitable Foundation, 1987.

Honors: USO's 2011 *Boston*, Multiplatinum, 1976; Grammy nomination, Best New Artist, 1977; *Don't Look Back*, Multiplatinum, 1978; *Third Stage*, Multiplatinum, 1986; *Walk On*, Platinum, 1994; Charitable awards from People for the Ethical Treatment of Animals, Friends of Animals, The National Hospice Organization, Action for Life Conference (Mahatma Gandhi Award), The Ark Trust, and the Animal Rights National Conference.

Greatest accomplishment: Being a father to my son.

Leader most admired: Albert Einstein, not for his work in physics, but for his vegetarian belief that eating animals is an unnecessary cruelty.

Hobbies: Freestyle skating, designing and flying radio control airplanes, flying real airplanes, studying Spanish, and recording rock n' roll music.

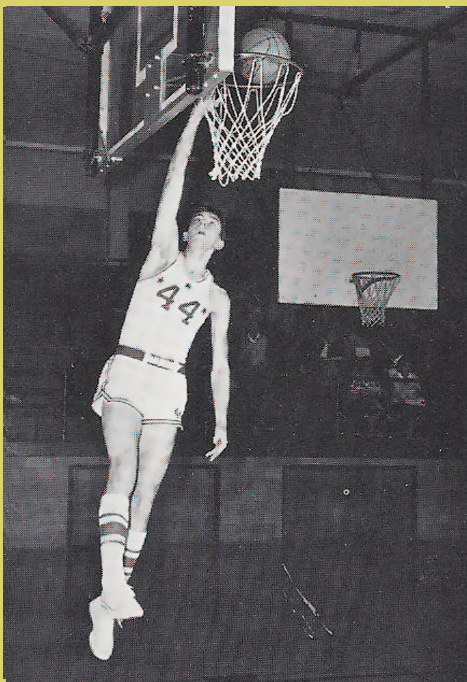
Favorite book: *Brain Droppings* by George Carlin.

If you could do one thing over: I make a lot of mistakes... wouldn't know where to start.

Tom Scholz



Above: A pastel of a young Tom Scholz. **Center:** Getting airborne as a varsity basketball player in his senior year of high school. **Below:** With Boston vocalist Brad Delp in his studio, which he rebuilt after the success of Boston's first album. **Bottom Photo:** Ron Pownall



Another device made the guitars sound like violins. A third changed tape echo speed and pitch. Using foot pedals, he added these sound effects as he played.

Working with two friends, drummer Jim Masdea and singer Brad Delp, he would lay down rough tracks, then spend weeks or months experimenting with the sound.

By late 1975, Epic Records was interested in his music, but John Boylan, a leading producer, wanted Scholz to re-record his songs in a top studio in Los Angeles.

Scholz said he could not reproduce his sound there and took Boylan down to his basement. The studio combined rudimentary technology with customized electronics in a space the size of a large closet. Boylan was skeptical but promised to fly in an engineer to look at it

"He took one look and said, 'Quite frankly, there is absolutely no way anyone could make an album in this basement,' and went back to the hotel," Scholz said.

Boylan returned on a bitter cold day in February 1976 to insist that Scholz re-record the album in Los Angeles. Scholz refused. Boylan put on his hat and coat to leave, opened the door, then turned around and said, "You make the master tape here, we'll mix it in Los Angeles, and we'll split the engineering royalties."

The rest was history. Scholz had modest dreams. He knew that people wanted to listen to music they had heard on the radio and thought an album might give him a modest local following.

Epic signed Scholz and Delp and recruited three more musicians. Boston played its first gig at a high school. Not one kid applauded, Scholz recalled. One week later, after the album's release, they played a large club. The crowd went wild and demanded an encore (they had none, so they replayed "More Than a Feeling," their first single). Their third concert was outdoors. Police arrested the promoter after the crowd broke through the fence.

He Quit His Day Job

Boston was flying. Scholz took a leave of absence from Polaroid to open on a Black Sabbath tour. Afterwards, he went back to work at Polaroid. Only after the album, *Boston*, surpassed sales of one million and promoters offered him a headline tour did he quit his day job.

Boston went on to sell 17 million copies, establishing Boston as a star in the rock and roll firmament. Success, however, brought pressures similar to those faced by successful entrepreneurs.

For example, Scholz saw Boston as an instrument to achieve his musical vision. Management chose to market the band Boston as a five-member group. This empowered some of the backing musicians who wanted to control Scholz's musical creations.

Noted film director Cameron Crowe later wrote in *Rolling Stone* that there was a deliberate effort to downplay Scholz's contributions. Scholz believes management did this because he resisted being manipulated.

They were right. Scholz clashed with Boston's managers about control of his music. He argued with Epic about the timing of a second album (Epic wanted a quick follow-up and released "Don't Look Back" before Scholz

was fully satisfied. It sold millions of copies, but was not as successful as *Boston*. Epic sued and withheld royalties when Scholz refused to rush a third album.

It took years before Scholz re-established control over his music, his recordings, and his band. His third album, *Third Stage*, took eight years to produce. It went multiplatinum, but left Scholz with a reputation as a perfectionist.

He thinks it is undeserved: “There is no such thing as perfection when it comes to art, but doing second rate work just to collect a paycheck is not something I would be happy with. My goal is the same as that of the best engineers, to come up with the best solution within my constraints.”

He also began manufacturing some of the guitar effects he had invented. His Rockman was the first portable headphone amplifier to produce the distortion heard on giant stadium speakers. It earned him fan letters from top rock musicians and a warranty card from famed guitarist Jeff Beck that is still tacked on Scholz’s bulletin board.

Raised Millions of Dollars

Today, Scholz continues to make music both in his studio and on tour. He has raised millions of dollars for his DTS Charitable Foundation, which supports a variety of animal and human rights causes. He received major awards from People for the Ethical Treatment of Animals (PETA) in 2013 and the Animal Rights National Conference in 2015.

Over the years, he has learned a lot about leadership.

“Doing something on a stage brings a lot of things to the surface that help you become a leader,” he explained. “When you get any group in a room, everyone has his or her own ideas, vision, and agenda. You need to get them to cooperate and do things to help you. You either figure it out or you won’t succeed.”

Leaders must understand critical technologies. “It gives you a leg up,” he said. “You’re not blind and counting on someone else to explain or interpret things.”

Before Scholz became an “overnight sensation,” he battled long odds and rejection. What enabled him to persevere?

“You don’t have to have confidence that you are going to be successful. Instead, you must believe that what you’re doing is rational and makes sense, and that it’s a good approach to solving a problem or making a discovery.”

That approach has enabled him to combine music and engineering for 40 years, and keeps him rocking today.

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Scholz’s Rockman, the first amplifier capable of reproducing the distortion of stage speakers in the musicians’ headphones.



Scholz on stage during a concert in Tuscaloosa, AL, playing his Les Paul guitar.



A wedding day image after Scholz married Kim Hart in the Florida Keys in 2007. Photo: Bob Summers