

# Edgar M. Villchur, a Hi-Fi Innovator, Is Dead at 94

By Dennis Hevesi

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Edgar M. Villchur, whose invention of a small loudspeaker that could produce deep, rich bass tones opened the high-fidelity music market in the 1950s to millions of everyday listeners, died on Monday at his home in Woodstock, N.Y. He was 94.



Photo 1. Mr. Villchur  
Rosemary Villchur

His daughter, Miriam Villchur Berg, confirmed the death.

Audiophiles have hailed Mr. Villchur as a seminal figure in the field. In its 50th-anniversary issue in 2006, Hi-Fi News ranked him No. 1 among the “50 Most Important Audio Pioneers.” John Atkinson, the editor of Stereophile magazine, credits him with bringing hi-fi into the home.

“Villchur’s development of what he called the acoustic suspension woofer made it possible for music lovers to buy loudspeakers that were domestically acceptable,” Mr. Atkinson said in a 2009 interview. “A guy’s wife could accept their presence on the bookshelf in the living room.”

Before Mr. Villchur's invention of the AR-1 loudspeaker in 1954, producing high-fidelity bass tones required speakers large enough to generate the long wavelengths of the deep notes. Some speakers were as large as a refrigerator. In the cabinet, mounted toward the front, would be what hi-fi specialists call the drive unit: a cone-shaped device activated by a magnet and a coil of wire to produce the sound. In the early days of hi-fi, manufacturers were not fully aware of the relationship between the drive unit and the acoustic role played by the cabinet itself, and they sometimes left the rear of the cabinet open.

Mr. Villchur realized that if the cabinet were completely sealed, the air trapped inside would act something like a spring that would control the cone's vibrations, greatly enhancing the drive unit's low-frequency performance.

"My measurements showed that my little prototype had better bass and less distortion than anything on the market, yet it was one-quarter the size," Mr. Villchur said in an interview with *Stereophile* in 2005. "I thought, 'This has got to be the future of loudspeakers.' "

It was. By 1966, according to *Stereo Review* magazine, Mr. Villchur's company, Acoustic Research, was the leader in the nation's speaker market, with a share of just over 32 percent.

One of Mr. Villchur's breakthrough speakers was placed on permanent exhibit at the Smithsonian Institution in 1993.

Mr. Villchur also made two other advances that greatly improved high-fidelity performance.

He developed one of the first dome tweeters, a drive unit that produces high frequencies. Before the tweeter, high frequencies were emitted by the woofer, but with very poor sound quality. Instead of the cone, Mr. Villchur (and other innovators working independently of one another) devised small dome-shaped diaphragms that proved optimal for producing high frequencies.

In the early days of the turntable, one of its biggest problems was an effect called rumble: vibrations from the motor and the turntable that were picked up by the needle. Mr. Villchur's solution was to separate the motor from the turntable and connect the two with a rubber belt, significantly reducing the vibrations.

Even though digital sound has largely replaced vinyl and turntables, Mr. Atkinson said, "Edgar Villchur's inventions have led to the application of scientific principles that are used in every loudspeaker now on the market."

Edgar Marion Villchur was born in Manhattan on May 28, 1917, the only child of Mark and Mariam Villchur, who had immigrated from Russia. His father was editor of a Russian-language newspaper, his mother a biologist.

It was his service in World War II that sparked Mr. Villchur's fascination with sound and electronics. He had graduated from City College in 1938, then earned a master's degree in education there two years later. But within a year he was drafted into the Army Air Forces and

was trained as an electronics technician. For most of the next five years, while rising to captain, he was responsible for his squadron's radio operations in the Pacific.

After the war Mr. Villchur opened a radio shop in Greenwich Village, making repairs and building custom hi-fi sets. He also taught a course in sound reproduction at New York University.

Mr. Villchur married Rosemary Shafer in 1945. Besides his wife and daughter, he is survived by a son, Mark, of Boston.

The Villchurs moved to Woodstock in 1952. In his basement, Mr. Villchur began testing his notion of a sealed-cabinet loudspeaker. One day in spring 1954, speaking to his acoustics class at N.Y.U, he hinted at his idea. One student, Henry Kloss, stayed after class, eager to learn more. Soon, student and teacher were in Mr. Villchur's 1938 Buick, headed to Woodstock. In Mr. Villchur's basement workshop, they listened to the copious low-frequency tones on an LP recorded by the renowned organist E. Power Biggs.

Mr. Kloss had a loft in Cambridge, Mass., where he was already building mail-order cabinets for Baruch-Lang speakers. It became the first headquarters for Acoustic Research. Mr. Kloss, who died in 2002, is credited with designing the production process for the AR-1 speaker and its successors, the AR-2 and the AR-3, which combined Mr. Villchur's woofer and tweeter models.

Among Mr. Villchur's duties was promoting the products. In the early 1960s he sponsored "live versus recorded" concerts around the country, including one in a recital room at Carnegie Hall and another at Grand Central Terminal. At the concerts, a string quartet would play a piece of music, then mime it as parts of a recording by the same quartet played through a pair of AR-3 speakers. The listeners were rarely able to detect the switchovers.

Mr. Villchur was president of Acoustic Research until 1967. After being bought by a series of manufacturers, the company went out of business in 2004. Its brand name was bought by the Audiovox Corporation.

Soon after leaving Acoustic Research, Mr. Villchur started the Foundation for Hearing Aid Research in Woodstock, where he developed a prototype of the multichannel compression hearing aid that has become an industry standard.