

# **Frederick Fennell, The Cleveland Symphonic Winds / Holst: Suite No. 1 in E-Flat, Suite No. 2 in F / Handel: Music for the Royal Fireworks / Bach: Fantasia in G (Special Edition Audiophile Pressing) (1978)**

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Essay by Thomas Fine (guest post)\*



*From left: Thomas Stockham, Jack Renner and Frederick Fennell*

In April 1978, Cleveland-based upstart Telarc Records ushered in the dawn of commercial digital audio recording in the USA with a bang. Or, more literally, a boom, from “the bass drum heard ‘round the world” as described by the World Book Encyclopedia Yearbook.

On April 4 and 5, Cleveland native Frederick Fennell, at that time head of University of Miami’s band music program, raised his baton in front of the Cleveland Orchestra’s first-chair wind instrument and percussion players on the stage of Severance Hall, the orchestra’s home venue. Just in front of Fennell, on tall metal stands, were arrayed three Schoeps/Studer omni-directional microphones. These microphones were connected to a Studer Model 169 mixing console, which provided facilities to mix the three signals (left, center and right) to two-channel stereo. As far as musical recording technology and technique, nothing about any of this was radically new.

But that Studer mixer connected to something very new and different, a Soundstream digital audio recorder. Rather than transmit the electrical signal from the mixer to magnetic tape as a current of varying voltages exciting an electromagnetic recording head, the Soundstream recorder converted the analog audio signal into a data stream of bits and bytes, sampling the incoming signal 50,000 times a second (50kHz) with a digital word length of 16-bits. The digital data, a “description” of the audio signal, was then written to a Honeywell tape recorder designed to record pulse-code modulated data. In this system, the recorded tape was the digital storage medium, akin to a modern-day hard drive or USB flash drive.

The Soundstream digital audio system was invented by Dr. Thomas Stockham, a University of Utah professor. Along with the digital interface to the Honeywell data recorder, Stockham developed a digital editing system that used a DEC PDP-10 mini-computer and massive Winchester hard drives. Recordings were transferred from the Honeywell data tapes onto the hard drives, which allowed for the first non-linear computer-based editing of digital audio. The final edited master was copied out of the computer back into data tapes, which were then taken to a disc-mastering facility and cut to LP record lacquers. Remember that in the 1970s, the LP record was the primary mass medium for music.

Stockham made experimental recordings with the Santa Fe opera in the summer of 1976 and demonstrated the Soundstream system at the Audio Engineering Society (AES) convention that fall.

Telarc Records, founded and owned by engineer Jack Renner and producer Robert Woods, started out making direct-to-disc recordings, with only moderate success. Renner told "Stereophile" magazine that he first heard about the Soundstream system from a friend in California, who had heard a demonstration at a local AES meeting. Renner said he "sat on it" for a few months but then heard a demonstration at the 1977 AES Convention. He and Woods were impressed but asked Stockham to extend the sampling rate to allow for full 20Hz to 20kHz frequency range (the prototype Soundstream system allowed for 20Hz to beyond 15kHz). Renner recalled to "Stereophile": "There I was, somebody who'd issued two direct-to-disc recordings ... and we were demanding of Tom Stockham ... that he make his machine better." To their surprise, Stockham agreed and early in 1978, he notified Renner he had improved his system to 50kHz sampling rate and the capability for four digital audio tracks and was ready to work for Telarc. In an e-mail exchange, Renner explained: "We had originally requested the upgrade because we ... wanted to hear more over-tones, etc., more air, and 'stuff' there that was just not present in the [prototype] design."

With all the technical pieces in place, the Telarc brain trust needed to find the right musical content to launch this new method of symphonic recording. Renner, as told to "Stereophile":

(On) a very snowy night in early March [1978], Bob [Woods] ... [and I] sat in front of a roaring fire and brainstormed. What would be the right first project? It had to be something really spectacular, with great dynamic range ... And then one of us said, "What's turning audiophiles on these days?" It took us about three seconds to realize it was Mercury Living Presence [recordings from the 1950s and 1960s]. I called Frederick Fennell—he was teaching at the University of Miami at the time—and he practically jumped through the phone when I asked him about re-recording some of his greatest Eastman Wind Ensemble hits with the wind, brass, and percussion of the Cleveland Orchestra.

For Mercury, Fennell had recorded the two Suites for Band by Gustav Holst, in the days before stereo LP records. In Cleveland, he took full advantage of Telarc's Mercury-like stereo recording methods and the new freedom of nearly unlimited dynamic range afforded by digital recording. The challenge of cutting this onto a playable LP record fell to legendary mastering engineer Stan Ricker, who attended the recording session. Ricker knew about the massive bass drum beats in the Holst Suites and had an idea to make it work in the grooved disc medium. Fennell told biographer Roger Rickson: "At Stan's request, the bass drum [Fennell's own Ludwig 38" diameter "with a very thick and old calf[skin] head," struck with Fennell's "personal beater"] was placed at the center of the set ... [and] turned with the heads facing front-to-back to match the vibrating microphone diaphragm, so [they] were in phase." Thus resulted an audio signal of tremendous low-frequency energy that could be cut into an LP groove that high-quality phono cartridges of the day could play.

Renner recalled the sessions this way: "Fennell's reaction [on hearing the Soundstream playback] was simple--'Wow!' At the sessions, we had writers from every major audio magazine of the time. There was a feeling on the part of all concerned that this was something special."

The Cleveland Symphonic Winds recordings were released in the fall of 1978 and caused an instant sensation in classical and audiophile circles. The novelty of an American digital recording also received widespread attention in the mainstream media. Reviews were mostly stellar, with no complaints about the music but some complaints about the LP being difficult to play with reviewers' equipment. It has remained in print almost continually since its release--first as an LP album, then a CD, then an SACD--and is available today on all the major music-streaming platforms.

Fennell went on to make another Soundstream digital recording for Telarc and had further success as a teacher, music director, conductor and recording artist. He died in 2004. Thomas Stockham received many awards as a digital pioneer. The Soundstream system was used on recordings by Telarc, RCA, Philips, Pablo, and many smaller labels. Stockham also died in 2004. Telarc Records thrived as an independent label until 2005, when it was acquired by Concord Music Group. Jack Renner died in 2019.

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