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I was born on March 17, 1943 into a family of music makers and creators. My father owned a small music store in Meriden Connecticut; my mother was a piano technician and worked with him. My grandfather was the featured singer at the Coronation of the last Russian czar, but had to leave due to the political changes that Russia was going through. Once here, he performed in New York, started conservatories of music (nine altogether), designed and built pianos, became a featured artist on Edison's cylinders and later Victor Records. My aunt, Audrey Marsh, was a pop singer in the 30's and 40's on RCA Victor and NBC live broadcasts; also she performed on Broadway in H.M.S. Pinafore (Rogers & Hammerstein).

As a youth, I had access to every instrument, every new record, and all the recording technology available. By the time I was 15 I had designed and built my first electronic device, a guitar amp I called the "Zeltec Amp".

I wasn't doing that well in High School, and quite honestly, Meriden didn't offer many outlets for the direction I wanted to go in, so I joined the Marines who offered me a good technical education and the life disciplines that I felt I needed. The Marines put me through Navy Aviation Electronics School in Memphis where I was given training in fire control radar, navigation, and communications equipment, tubes being the dominant technology. Over my enlistment of 6 years, I received about two and a half years of technical training as well as finishing high school and taking ancillary math courses from the Armed Forces Institute and U.C.L.A. I finished my active enlistment with a letter of thanks from the base Commanding General, for building a radio station (AM) for the Cherry Point Marine Air Station, from scratch, out of surplus junk. Over a year of my enlistment was spent in Japan where I was assigned to Armed Forces Radio and Television as a recordist and technician. My normal functions were recording the first Marine Air Wing Orchestra and Japanese traditional music for broadcast on the Far East Network. My special assignment was the Bob Hope Tour, recording all the performances in Japan and editing them into an airable form for FEN.

On my way home from the Far East in 1963, I stayed for a while in Los Angeles with family. I noticed a convention taking place with the intriguing name Audio Engineering Society. I spent a couple of days there and was easily talked into joining their organization. I needed three sponsors. One of the gentleman I was talking to (Ham Brocius) walked me around to some of his friends, who asked me a lot of questions, and then sponsored me as a full member. Later I found my other two sponsors were Harry Olsen, Chief Engineer of RCA and Ben Bauer, President of CBS Laboratories.

Upon leaving the service, I took the FCC examinations and got a First Class Radio Telephone license, which entitled me to accept any commercial or government position covering all forms of broadcast and communications work. The first job I got was for Times Wire and Cable making analog delay lines for the "Dew Line" early warning system. In the same neighborhood was a company named Synchron. I started to hang there because of two resident genius' named Bill Lobb, and Allen Douger, who invented the worlds first FET condenser microphone, manufactured under their own name and as the Fairchild F22. Eventually I worked there making microphones, building a recording studio and an anechoic chamber for microphone and product testing. In 1965, I was offered a broadcast engineering job for Concert Network. Concert Network consisted of four FM radio stations, WBCN Boston, WNCN New York, WXCN Providence, and the Hartford station WHCN that was not on the air. My job there was to rebuild and convert the WHCN transmitters to stereo, increasing the power to 50,000 watts and to build a new stereo oriented control facility. During that time the Boston station changed it's format from classical to "underground rock". After the rebuilding was complete, I assumed the position of Station manager of WHCN and changed the format there also. I served as part time transmitter Engineer at two other stations, one FM, one AM, and played bass in a rock and roll band evenings and weekends.

In '67, my cousin Meredith Monk asked me to help her design sound tracks for her dance theatre performances in New York. I worked with her through the mid 70s including live electronic music performances in Canada's Expo 67.

While in New York I was offered a job as Location Recordist on a TV documentary for Clarol Hair Products about the beginnings of the Hippy Movement. That project included recording music tracks written for the film by an exiting new group called The Mothers of Invention and recording live performances of the Steve Miller Band, some with Buddy Miles, at the Matrix in San Francisco. Post production of the film took me back to Synchron as a client for two months.

In the fall of 67, Synchron offered me a job as full time recording engineer. During the next four years, I worked with Doc Cavalier on most of the in house projects for Chess, Buddah, Vanguard, and Poison Ring record labels. My job also included outside work for RCA, Mercury, Abco, and others. Two notables are the Joe Cocker sessions with the Glen Campbell band and the Stones Anthology Series with Andrew Loog Oldham producing. Still playing Bass, I performed on three albums during this period. When I wasn't in session, I was working with Bill Lobb on tech projects. Together we designed and built a new control room for the studio and an API moduled console of our own design. In addition, the opportunity to experiment with what I learned resulted in the development of the time shift panner and a solid-state implementation of a Blumline Stereo Shuffler (EMI 1949).

In 1971, it was back to New York as the chief engineer at Six West Recording (later becoming Arista Studios). Six West was a Jingle House, perhaps the hottest in New York at the time. Every job was for a major corporation and

because of that I had the opportunity to work with the finest studio musicians on the planet, in a Neve equipped studio B, and studio A, a large live room with a 20 channel Shepard tube custom recording console.

1974 took me to Audio Techniques as Service department manager. During my short stay, I was sent to three training mini courses on MCI equipment. I found this work very frustrating and after I hurt my back on an understaffed job, I left and tried Freelance work. Although this job didn't work out, it did put me in contact with many of the major players in the New York studio business; some of them became life long friends. I left on good terms.

I freelanced until 1978. During this time I built La Tierra Studios, Latin Sound, Normandy Sound (number 1), designed sound systems for The Galveston Opera House, The Augusta Coliseum, and the Tupperware Convention Center through Jaffee Acoustics in Norwalk Connecticut. In another project for Jaffee, I designed a plug in for a Tektronix oscilloscope that turned it into a reverb time measurement device. In '77, I developed for Xedit Corporation a drift and flutter meter to measure speed variations in tape based recorders. A patent was applied for, for the development of the biphase locked loop design in an IC based device, but was declined, because it wasn't applied for within a year of public offering by Xedit. The design was copied by 3M and Fidelipac corporations but Ampex bought 240 of them to equip their service people worldwide. The Biphase locked loop is the heart of most low jitter clocks that can run as slaves. In 1975, I started doing work for Howard Schwartz Recording, a four-track studio doing radio advertising. I converted his radio room to a 24-track music room and designed the audio path for his 24 track B room.

I went to work for Howard full time in 78 to design the audio path and lockup systems for his "state of the art" music and video post rooms. I won a Tech award from Mix Magazine for the West Room. When I left in 1987, he had nine rooms of various capabilities, and was considered the hottest (and most expensive) music and postproduction facility in the New York area. I had full use of these facilities, after hours, for my own projects. Starting in 1980, I attended many tech seminars sponsored by Syn-Aud-Con with Richard C. Heiser of Cal Tech and JPL on the subject of multi dimensional acoustic analysis and newer theories on the design of small control rooms. Putting the newly gleaned knowledge to work, I designed and helped build Normandy Sound (number 2) in Rhode Island.

In 1988, I did a project for Time Line Corp. designing an edit controller for time code based audio and video. I also designed some of the circuitry in their System Supervisor.

I started with the Gordon Media Group, owned by Carlton Communications, in 1989. GMG consisted of four facilities, Automated (2 rooms for music), SuperDupe, (6 rooms for radio and TV), East Side Film and Video, (5 rooms for TV and film), and Post Perfect & Mixed Nuts (6 video and 3 audio suites for TV Post Production). My position as Technical Director of Audio for the group put me as the chief architect for the entire rebuilding of all the facilities. I won a Tech Award and a cover photo for the Mixing Theatre at East Side. The centerpiece of three of the East Side rooms, were custom consoles built to my

design by SSL. A nearly identical console, the 8000G, was introduced by SSL about a year later. The new rooms quickly became the hottest post rooms in New York. I liked this job very much, however, a management change ruined the companies. They no longer exist.

Freelancing again in 1994, my client list grew. AMS Neve, A&M Studios, Atlantic Sound, Aura Sonic, Bennett Studios, Big House, Blue Jay, Brooklyn Recording, Burst Records, Carriage House, Chung King House of Metal, Clinton Recording, Classic Sound, Daddy's House (P. Diddy), David Letterman Theatre, Downtown Music, Dub Way, Echo Mountain Recording, Excello Recording, Firehouse 12, Fireproof Recording, Foothill Digital, Fujisankei Communications, Gat Three Productions, Germano Recording, Greg Giuffria Recording, Harrariville, Headroom Studios, Kaufman Astoria Studios, King Biscuit Entertainment, Krystal Sounds, Loho Studios, Looking Glass, Lou Reed, Magic Shop, Manhattan Beach Studios, Marley Marl, Master Disk, Met Opera, Mirror Image, Mixopolis, Moose Audio, Mother West Recording, Normandy, OSI Music, Pilot Recording, Quad Recording NYC, RPM Studios, Reflection Sounds, Right Track Recording, Roc The Mic Studios, Rudy Van Gelder, Rupert Neve, Sea Side Lounge, Sear Sound, Seven Seas Studios, Sieman's Audio, Snow Bound Sound, Soho Studios, Sonic Circus, Sony Studios, Solid State Logic, Stratosphere Sound, Street Light Studios, Studer, Tape Works, Three Tree Productions, To The Beat Productions, Trod Nossel Studios, Unique Recording, Valley Sound, Vidipax, and Washington Professional Systems were and/or are my regular clients.

For Chung King, I built three State of the art music rooms featuring Neve consoles, including a large format Capricorn digital console. For Met Opera it was a Complete Sadie digital system; for RPM and most others, Pro Tools.

In 2002, I started working with Unique Recording Software, modeling analog audio equipment for workstation plug-ins. The N series were nominated for another Mix Tech Award.

My most recent projects were building a new digital room at Looking Glass for Tony Visconti and David Bowie featuring a Pro Tools HD-3 48 track system and a Yamaha CS-2000 console in a 5.1 environment, and another Digidesign HD4 / "D" Command 5.1 room for Hector Castillo also at Looking Glass

Looking Forward . . .