

On December 4, 2016, the Boston Audio Society invited John Allen to spend a Sunday evening with them to talk about his career in sound.

What follows is the BAS summary of the meeting.

Meeting Feature:

John F. Allen, High Performance Stereo

John F. Allen (JFA) noted that there were several special people at the meeting, among them two conductors: Jonathan McPhee (www.JonathanMcPhee.com) as well as Ron Sylvester. In addition were BAS members Richard P. Goldwater, E. Brad Meyer, Alvin Foster and David Moran. Also present was two time Academy Award winner and very special guest, Tom Scott, who worked on films THE RIGHT STUFF, APOCALYPSE NOW, and AMADEUS.

Allen took time to express his appreciation for what the Boston Audio Society had meant to him. He acknowledged how Brad Meyer had brought in the first compact disc that he had seen and also how Peter Mitchell had introduced him to the DAT format. In short, the BAS allowed him to see the future. At the old BOSTON PHOENIX, David Moran published John's first article. Allen acknowledged that Moran helped him appreciate how every good writer needs a good editor.

He also said that he had recently been hired to design and provide the sound system for the Marine Corps museum in Quantico, VA and spent a few minutes describing it. The theatre has a very large 70 by 50 foot screen. When a screen gets too wide, the speakers behind can get so far apart that they become separate sound sources and stereo falls apart.

In the 1930s, stereo was three channels (left, center and right). The road-show films of the 1950s had great sound mixes. For 70 MM releases, there were five screen channels (adding a left-center and right-center to fill in the acoustic "holes" between the center and the left/right screen speakers). When STAR WARS was released, the left center and right center speakers were eliminated in favor of adding subwoofers.

IMAX has chosen a high-center speaker to try to build a taller sound image behind their high screens. But this still leaves much of the projected image without sound behind it. JFA has also used high-center speakers at both the Wang Center (for the Boston Ballet) and at the Hatch Memorial Shell. For the Marine Corps museum he will use the traditional 70 MM five screen speakers and five more fairly high up behind the screen. In addition, there are a total of eight subwoofers. The sound system will have a total of 3.7 horsepower of acoustical output, equivalent to 37 symphony orchestras. “You could deafen the audience with this, but I just want it to sound beautiful.”

Goldwater: In my 19-channel surround system is an old lexicon processor to generate the extreme left and right. Auro 3D (www.Auro-3D.com) does not generate wide-left and wide-right channels.

JFA: There are many movie mixes where sounds convincingly appear to come from beyond the screen speakers, even without wide-front speakers.

At the age of 12, a first stereo system and American Airlines

Beginning his formal presentation entitled A FORTUNATE and UNLIKELY JOURNEY: In 1960, he went to see a 70 MM presentation of SPARTACUS. The sound of the film amazed him so much, he bought the soundtrack album. But he had no system on which to play it. So with his father’s help, he built a Heathkit stereo amplifier and a couple of bass reflex speakers. He was not happy with the speakers. In fact he wasn’t happy with any speakers he encountered. His next-door neighbor, Gerald Kraft, owned a Klipschorn. Upon hearing this speaker, John’s life was changed forever.

Allen’s path to professional audio was circuitous. Starting when he was a boy, he learned all he could about his passions: color TV, airplanes and rock and roll, but especially airplanes. He went to Boston’s Logan Airport to see the new Boeing 707. While there he

was able to meet some of the staff at American Airlines. As time went on he developed some important friendships and was slowly granted some truly extraordinary privileges at American.



American Airlines N7545A

On Sunday, September 24, 1961, American Airlines flight 44, operated by a Boeing 720-023, registration number N7545A, overshot runway 4R at Logan airport. The plane did not touch down until beyond the intersection with runway 33. With almost no runway left, the plane skidded off the end and into the water. Fortunately, no one was hurt. The avionics bay below the flight deck was torn out along with the nose gear. In addition, as the plane was spun around in the mud, the two left engines separated from the plane's wing.

After pulling it out of the water, American had to decide whether to repair the plane or simply get a new one. The costs were about the same. But a new plane would not be available for at least a year and they needed a plane. So American elected to rebuild what

became known to everyone involved as simply “545.” Sandy Siegel, superintendent of overhaul and a legend at American Airlines was in charge. Siegel and John became good friends and remained so until Siegel’s death in his 90s. Over the next six months technician’s from American’s main maintenance base in Tulsa took the plane apart (about as much as possible) and restored it with a new nose section, flight deck, landing gear, engines, interior and about 75 percent of the plane’s wiring. Watching all this provided Allen a lifelong lesson in craftsmanship. It was an incredible opportunity to learn. He even got to the point where he could have started and taxied a Boeing 707 if they would have let him. But that would have to wait for another day.

When the plane was finished and the time came to test fly it, American’s chief test pilot, Percy Cunningham, called Allen’s mother and asked if she would grant permission for her son to go along. Upon boarding, Cunningham insisted that Allen sit in the flight deck right behind the left seat for the entire flight.

Years later, Allen took advantage of Sandy Siegel’s open invitation and visited American’s Tulsa maintenance and engineering base on three occasions. He was also invited to the airline’s flight academy in Dallas and was allowed to “fly” a 727 simulator. Though it had been so many years since the accident in Boston, Allen still remembered the flight deck and knew what to do.

The experiences at American Airlines proved to be so influential in Allen’s formative life, especially the dedication to excellence he witnessed, that he felt it important to share this story with us.

Color television and Klipschorns

In 1964, Allen built his first Heathkit color TV. Two years later he sold it to a family friend, Gordon McLean. He refers to that sale as the beginning of his business career. He then went on to build many more and sold them to customers along with high quality

roof antennas. During a casual visit to Heathkit's New York City store, Allen mentioned what he had been doing to the store's assistant manager who, by chance, was to be the manager at their unannounced but soon to be opened store in Wellesley, MA. He immediately offered Allen a job as their television technician. Years later Allen would learn that the reputation for his work at Heathkit had brought him to the attention of Peter Mitchell.

Allen's next goal was to acquire a pair of Klipschorns of his own. Unwilling to wait until he could afford factory-finished models, he bought the unfinished "decorator version." After months of preparation he constructed the high frequency cabinets according to Klipsch's style B design and applied a walnut veneer to all the exposed surfaces. With the help from another neighbor who owned West Newton's Mayflower furniture store, the final finishes were applied. Years later upon visiting Allen's house, Paul Klipsch was so impressed ("It looks like we did it," he said) he autographed both of them.

Since its introduction in 1946 and for the rest of Paul Klipsch's life, the Klipschorn has undergone various updates, mostly with new and better drivers. The woofer horn itself has remained almost the same. But when Klipsch realized the low frequency performance would be improved if the back air chamber of the woofer driver could be enlarged, he accomplished this by opening passageways into spaces at the top and bottom of the folded horn.

Klipsch was a strong proponent of the Bell Labs approach to stereo that included a center channel. This channel could either be discrete or derived by summing the left and right channels. The center channel does something small but important: it focus the center of the orchestra so instruments such as the flute and other woodwinds don't sound larger than they really are.

On WBUR's SHOP TALK Peter Mitchell had criticized Klipschorns, at least until he heard them. That event took place in 1980 at what was the first joint BAS/AES meeting

organized by John Allen with his special guest Paul Klipsch. The meeting took place at Sylvania's Waltham campus. Over 150 attended. In later years, Allen produced meetings on movie sound that would draw as many as 450.



JFA Klipschorn

Today, Allen's home stereo consists of a pair of Klipschorns with a Belle Klipsch for the center channel. He is still using a 1974 Kenwood KA-8006 preamp for its special tone control design, but now uses the new BGW VXi balanced differential amplifiers along with his library of BSO tapes and CDs.

Allen commented that he was fired from just about every job he had held, mostly for refusing to cheat customers. But he liked building things. So he continued with his color television activities. One day he suddenly found himself in the master antenna business after a chance

meeting with David Mugar at the studios of WCRB. Mugar was planning to build a new home. Because he had challenged the license to operate Boston's channel 7, the house was going to need a television distribution system. This was the beginning of Allen's master antenna business, which became his livelihood for the next 12 years. In one of his first large contracts, Allen designed and built Boston's first cable TV system in the city's South End.



WGBH Tape duplicator

Professional sound

After many years of listening to and recording the Boston Symphony broadcasts, Allen got to know WGBH Chief Engineer Bill Busiek at the 125 Western Avenue building, and legendary BSO announcer William Pierce. In 1975, he began his career in professional sound when he was asked by WGBH to design and build a new one-to-one (normal speed) tape duplication system that would make Dolby A, Dolby B and non-Dolby encoded audio copies at the same time. This facility employed 12 Revox A-77 tape recorders and was later expanded to also create cassette copies as well as recordings (for later broadcast) of syndicated programs downloaded from a satellite. This marked his entry into professional audio.

The Esplanade

David Mugar and Boston Pops conductor, Arthur Fiedler were friends who enjoyed

chasing fire engines together. One evening at a fire they decided to have a big concert at the Hatch Memorial Shell on the Fourth of July 1974. Mugar to Fiedler: “You do the 1812 Overture. I’ll bring the cannons and fireworks.”



The Hatch Shell on Boston’s Esplanade

In 1975, Allen had to set up the audio for a production meeting at Symphony Hall for that year’s Fourth of July concert. Harry Ellis Dickson, Fiedler’s associate and Governor Michael Dukakis’ father-in-law, happened to sit down next to John. He told John that the sound at the shell was “terrible.” When John said that it was owned by the state and that there was little hope for improvement, Dickson said “Mike wants it done!”

With that, Allen attended one of the Pops 1975 Esplanade concerts. The sound was mono and, yes, terrible. The speakers pointed straight forward. The audience was barely paying attention and mostly talking. During the intermission Allen toed the speakers inward to improve coverage. Over the next two days he borrowed the needed equipment from WGBH and rewired the building for stereo for the first time.

Conductors don't always get along well with sound engineers because they feel that they ruin the music. For the next Pops Esplanade concert the audience was actually quiet and paying attention to the music. With Allen at the controls, the now stereo sound was so improved that during intermission conductor Harry Ellis Dickson sent out a message that he was not going to continue the concert until he spoke to Allen. "WHAT HAVE YOU DONE?" he shouted to John. "I've never been so comfortable on that stage in my life."

During the winter of 1975-76, the call went out for a new sound system at the Esplanade to be ready for the July 4, 1976 bicentennial Pops concert. This was a Massachusetts State government project with normal bidding protocols. Fortunately, Allen won the bid. He put in four Klipsch LaScalas on each side in custom-built cabinets that were 9 feet high, 8 feet wide and weighed 1000 pounds when fully loaded. By instinct alone, he decided to employ four LaScalas per side rather than six. All together they produced an output of 140 dB SPL, which he said was barely enough.

Over 400,000 people showed up for the bicentennial 1976 Fourth of July concert. This was the largest concert music audience in history, according to the Guinness Book of Records. The Boston segment of the Fourth of July programming was the only time CBS skipped a commercial during that day's national coverage. For John, his feed to CBS was his first broadcast and it went around the world. It got him a nice bonus from CBS and an unexpected commendation from President Gerald Ford.

For the July 4, concerts Allen brought in backup equipment for everything. The Esplanade sound system was designed to lose equal sound power on each side if one of the four stereo amplifiers failed. In 1978, Allen added a Klipsch MCM (industrial Klipschorn) on top of the Hatch Shell. In addition to a couple of spot microphones, he used only three main microphones for orchestral concerts: "This most easily captures the conductor's balance and sounds the most natural."

The first year, Allen used AKG cardioid microphones. Wind was a major problem. Three

RCA BK-5 ribbon microphones with giant windscreens the size of a grapefruit were left over from the old days and could be used for the bass. The next year, he switched to omni directional capsules and made his own wind screens. That solved the wind problem.

One year, during a Fourth of July concert, an old, unknown and intermittent short circuit in the backstage wiring for the center microphone caused a brief but prominent crackling sound. He immediately switched over to his backup microphones during the music without anyone noticing. Dickson once sat next to him at the control board during a concert and remarked, “ You know John, it doesn’t even sound amplified.”

As the crowds gathered for the Fourth of July concerts, Allen played Boston Symphony tapes all day long. Beginning at noon, he played a BSO tape of ALSO SPRACH ZARATHUSTRA, that always produced a loud cheer from the audience. The music was selected to be more dynamic through the afternoon, then quieter around 5 to 6 PM. This was important for crowd control. A point proven one year when there was a TV camera rehearsal and Allen could not play any music for a couple of hours. People started getting out of hand. Human pyramids started popping up and crumbling down. It got so bad that Allen grabbed the radio and reported that if he wasn’t allowed to start the music again right away, that someone was going to get hurt. After a few minutes of Mahler’s fourth symphony, the crowd calmed down and no one was hurt. During JFA’s tenure at the Esplanade, attendance increased dramatically prompting the State to more than double the number of concerts and events.

Another chance encounter, this time with Richard Goldwater, and another new career

At the beginning of every summer, Allen would reinstall the speakers at the Hatch Shell, set up at his mixing position on the lawn and play tapes for a few hours to make sure everything was working. During one of these afternoons Richard Goldwater happened to stop by. Upon hearing what he later described as “incredible sound,” he introduced himself and invited Allen to be a guest on WBUR’s SHOP TALK.

Allen remarked to Goldwater that he felt the SHOP TALK panel members knew more than anybody about tuners and turntables, but not loudspeakers. Goldwater encouraged him to come on the show to express his feelings. In the years following, Allen became a frequent guest; speaking about antennas, speakers as well as the Esplanade and eventually guest-hosting two shows when Mitchell was away. Following his first SHOP TALK appearance, Allen was invited to address the Boston Audio Society by Alvin Foster.

In 1979, on one particular SHOP TALK program when Allen was there to discuss antennas, Peter Mitchell was upset about something and launched into a 10 minute diatribe about APOCALYPSE NOW. He was angry that Boston wouldn't get a 70 MM print because it didn't have a theater with the needed sound system.

When Mitchell was finished, Allen, who had once been an apprentice projectionist at the West Newton Theatre, commented about Dolby's recent entry in motion picture sound. "Maybe I should look into it," he said on a whim. Without knowing, this moment began Allen's new business in motion picture sound systems, later to be called High Performance Stereo. This has been his primary business activity ever since.

He went to a seminar held at Dolby's Sansome Street headquarters in San Francisco. Except for the people from Dolby, the theatre technicians there seemed to know very little about sound. He met Ray Dolby and Ioan Allen, who became good friends. On the way back from San Francisco, he went to Hope, Arkansas to meet with Paul Klipsch. During their meeting Allen described Dolby's activities and said that he thought Klipsch's speakers deserved to be behind the screen more than any others.

Klipsch and his chief engineer Gary Gillum suggested the MCM, the same system Allen had used for the center channel at the Esplanade. These were large three-way speaker systems, recently updated to four-way, that they both had invented. The midrange horn

had four compression drivers, a 160-watt virtually unbreakable drive system. When played through a movie screen, a tweeter's beamwidth, above 7 kHz, gets wider in all directions. Klipsch was unhappy with the original MCM tweeter. For what turned out to be his last handmade design, Paul Klipsch made John a new tweeter for the MCM in 1983. He had worked on the project for two years. With the beamwidth spreading of the screen in mind, the new tweeter had a beamwidth of 40° horizontal and 12° vertical. Movie screens expanded this to 60 degrees horizontal (matching the midrange) and 30 degrees vertical.



Wellesley Community Playhouse

Any decent woofer that gets good control of the air in the room, like a folded horn, requires equalization to correct for the effects of the room. These effects are far more pronounced than the effects of folding the woofer horn. The MCM woofer horn is seven feet long with a mouth area of 10.25 square feet, moving lots of air. Allen said the most accurate way to determine the low frequency EQ is with a trained ear.

In his first meeting at the Hope, AR factory in 1979, Paul Klipsch appointed Allen the national distributor for Klipsch theater speakers and worldwide distributor a year later. This continued until 1986. This was Klipsch's entry into the movie theatre market. During another trip to Hope, Allen found himself in Paul Klipsch's living room modifying Paul's personal Klipschorns, replacing both the midrange drivers and tweeters.

Allen needed to install a full system in a theater. In 1980, the Wellesley Community Playhouse was the first. The Klipsch system he installed there included three Klipsch MCM three-way systems behind the screen.

In those early days, surround speakers were (and still are) typically noted for often making people feel "attacked" because they were too prominent and distracting due to poor speaker quality and uninformed placement around the audience.

In addition to the common non-directional ambiance effects, such as wind in the trees, directional effects can also be rendered, even with mono surrounds, if the surround array is well designed and equipped. Allen designed a new surround array using formulas he developed that precisely determined the location of each speaker. Coverage in the surrounded area is typically $\pm 1/2$ dB, with no single speaker localization detected anywhere in the theatre. He also puts speakers in the rear corners -- the only locations that cover the entire room. Allen said that there have been two attempts to steal his concept. Both failed.

Unlike typical theatre speaker systems, he uses special passive crossovers, custom-made, with a 1/2 dB insertion loss and 1000 Watt capacity. The speaker cables, which run all the way from the projection booth to the speakers behind the screen, are solid four-conductor round Romex wire, with the two opposite conductors on each polarity, canceling inductance. Stranded wire has as much as a 5 dB loss at 20 kHz over a long distance. The Romex is flat.

To help get his movie sound business started, Allen offered three articles to **BOXOFFICE MAGAZINE**. These articles were so well received that the editor asked for more. This led to a series of articles for that magazine that lasted for the next 27 years. To this day, Allen's articles still appear in the industry's trade magazines.



The Waikiki 3 Theatre

All of John's early surround arrays were designed using a slide rule. This was both inefficient and time consuming. On a 1982 trip to evaluate the Carib Theater in Kingston, Jamaica for a new sound system, John spent most of the flight feverishly programming his HP-41 programmable calculator with his formulas for surround speaker placement. The Carib thus became the first movie theatre sound system in the world designed by computer. The room was 180 feet long, 85 feet wide and 60 feet high, including a large balcony. This remains the largest theatre he has ever done.

When John's system was installed in the Waikiki 3 theater in Hawaii, it sounded better

playing a 35 MM print than did the Waikiki 2 with a 70 MM print of the same film. This caused the operators, Consolidated Amusements, great concern. They had a meeting about this the very next day to decide what they had to do now that all their other theatres were delivering noticeably inferior sound. The conclusion was that they needed to upgrade all those theatres with John's sound systems.

Unlike the Waikiki 3, the Waikiki 1 and 2 theatres did not have a ceiling high enough for the ideal placement of the surround speakers. With speakers located too low, the sound from the sidewall surround speakers arrives too soon. Those in the audience will localize to the side speakers they are closest to and fail to experience being surrounded. Adding some additional delay to the side speakers allows the sound from the rears to arrive with the appropriate timing and restores the surround effect.



The Plitt Century Plaza Theatre

In 1983, Allen worked with Paul Klipsch and Gary Gillum on a newer Klipsch theatre speaker, the TSCM, <http://www.itishifi.com/2012/08/klipsch-tscm.html>. The system

consisted of a Klipschorn woofer with a stronger driver and the corner built on. The high frequency section was made up of a two-foot long horn with a 2-inch throat and the four-unit MCM drive system. The tweeter was one half of Paul's recently finished MCM tweeter. About 60 TSCMs were built over the next 8 years. Since then they have become something of a cult speaker. When they can get their hands on them, people seem to cherish them.



Bringing digital sound to the movies

John was asked to design a new sound system for the Plitt (flagship) Century Plaza Theater in Los Angeles. The city insisted on steel speaker frames behind the screen. The installation required that the theatre be closed for nearly a week. During this time Ed Plitt decided to hold a demonstration for the Hollywood community and the press. He asked John, "How can we really show this thing off?" Allen's answer was digital.

At the time there were only two feature films mastered with digital soundtracks. One was Walt Disney's FANTASIA. The other was METROPOLIS, a silent film by Fritz Lang from 1927, reissued by producer Giorgio Moroder with a new contemporary music track. The way to play this was convoluted. With the sound fed from a Sony 3324 digital recorder that was "synchronized" with the projector, one hoped the sound would stay in sync. It could take as long as a minute to lock up. In 1984, digital sound with motion pictures was a technology so advanced, it almost couldn't be done.

On December 6, 1984, with the help of Giorgio Moroder and Glen Glenn Sound's President, Tom Kobiashi, who arranged the loan of the 3324, Plitt and Allen presented the world premier of digital sound in a commercial motion picture theatre with the newly installed and newly named HPS-4000® sound system. Moroder had loaned John the third reel of his personal answer print of METROPOLIS along with the digital print master.

As usual, the digital audio started out of sync, but Moroder's engineer was able to correct it. At least it was only music with no sync points. Playing a film with digital sound this way allowed a running time of just 20 minutes and made playing a full-length film in a theatre impossible.

At lunch following their successful presentation, Plitt said, "That was great John, now what?" Allen said that the only thing left was to present an entire feature with digital sound.

In 1982, two-time Academy Award winner, Irwin Kostal had been assigned to record a new soundtrack for Disney's 1940 film, FANTASIA. Disney management had felt that the original 1940 soundtrack could no longer be presented to a modern audience. So they re-scored the film, only this time using digital tape recorders.

Plitt's district manager, Bob McKeehan, noted that FANTASIA just so happened to be up for another release in a couple of months. So Plitt and Allen decided to see what they

might do to play the film with digital sound. This was something that no one knew how to do. Indeed, no one was even thinking it would happen for another ten years.



Upon his return to Boston, Allen called Brad Meyer to ask if he thought a 90-minute PCM-F1 recording could play reliably with a VHS cassette. Allen's thought was to synchronize the projector with the cassette player. Using a Sony PCM-F1 digital encoder one could store the two-track stereo LCRS matrix on the video portion of a VHS cassette and place time code on the audio track. With the film on a platter, there would be no problem with reel changeovers.

Disney's EPCOT has auditoriums all around the park. The sound for the films in these rooms all comes from a central location and is fed over audio land lines along with time code. The time code is used to control a stepping motor on the projector, keeping the sound and picture synchronized. Allen and Disney's engineers brought in one of the

EPCOT synchronizers and installed a stepping motor to one of the theatre's Century JJ projectors.

It should have worked. But when it was all put together at the theatre, it didn't. There were occasional dropouts -- never in the same place. This became a matter of great concern. They were opening in two days. The press demonstration was the next day. By some miracle, the press demo went perfectly. However, after the reporters left the dropouts returned. There was only one thing to do. They brought over the FANTASIA print master from the studio along with the one-inch VCR that it was made on and opened with it -- running perfectly. There was no copy of this print master and it was now in a theatre.

But why were the cassettes failing? It turns out that it was due to the difference between a 10-line and 13-line video recording head changeover difference between the one-inch and VHS video formats. In order to fix this the film's entire soundtrack would have to be re-mastered. With the company's approval, Disney engineers did exactly that and re-mastered the entire film -- in one night.

From then on the new VHS cassettes worked flawlessly. Being the first movie with stereo sound, Fantasia thus became the first movie in history presented with digital sound. It was a great success, grossing twice the next highest grossing theatre, five times the national average and played four times longer. The digital revolution in movie theatres had begun.

This event caught the industry by surprise and off guard. While FANTASIA was still playing at the Century Plaza theatre, Allen got a phone call from Ron Uhlig at Kodak asking, "What can we do to help?" "Put it on the print," Allen replied. "We don't think we can," Uhlig said. But within in five years following FANTASIA, aided by Kodak's research and new film stocks, the industry rolled out four different digital soundtrack formats for motion picture release prints.

The National Park Service

After auditioning speakers from 22 manufacturers, Allen was selected to provide new sound systems for the National Park Service. This led to work at the theatres at the USS Arizona Memorial at Pearl Harbor, Hawaii. Upon auditioning the documentary film's soundtrack, he discovered that the treble balance was low, as was the overall level. To make matters worse, several lines of the narration were buried by sound effects. From the original six track analog print master, he remixed the film's soundtrack and created a new six track digital print master on DA-88.

For the next 20 years, Allen ended up doing many other theaters for the Park service, typically either re-mastering the soundtracks or creating the original mix. But now, thanks to the budget sequester, the Park Service can neither build new theatres nor maintain the sound systems in the ones they have.

The Boston Ballet

The Boston Ballet summer performances at the Hatch Shell introduced John to the Boston Ballet and ultimately led to Allen's work at the Wang Theater. The theatre had a well-known reputation for bad sound. In 1988, he was appointed sound director for the Boston Ballet, a position he held for twenty seasons. This also coincided with Jonathan McPhee taking the helm as music director. There was a big problem in the Wang Theater. The sound in the balcony was excellent, but suffered on the main floor due to a lack of natural reflections that directed the sound from the pit to what were the most expensive seats. There were "kickers" (reinforcement speakers) under the balcony, but they seemed ineffective. Allen added new side fills and reprogrammed the house system, making 180 changes.

Allen and Jonathan McPhee soon discovered that they both had the same goal: to make

the audience unaware of the sound reinforcement. They developed an unusually close working and trusting relationship that continues to this day. In one sense they almost had no choice. Before every opening, there was one and only one three-hour orchestra rehearsal in the theatre on a Wednesday morning. In just three hours everything had to be done, both musically and technically. If necessary, Jonathan McPhee allowed Allen to actually walk over and stop the rehearsal if needed.



The Jonathan McPhee designed orchestra pit at Boston's Wang Theatre

The old orchestra pit was a dreary place to try to make music. Jonathan insisted that it be rebuilt according to his specifications. Once finished, the new pit was such a success that the Wang's acoustical consultant copied it in his new orchestra pits from then on.

McPhee continued: When he first came to Boston, the orchestra was down a 10-foot concrete shaft, deeper than usual, with no insulation under the floor. Broadway shows would come in and sound designers would negate the properties of the room, and intelligibility was gone. The new orchestra pit was completed along with the renovation of the theater. McPhee said that he toured 35 weeks per year for years, and had learned what worked and what didn't. Sound was OK in some theatres but in Grand Rapids, for example, you would end up with a rock and roller on the sound system.

The goal with John was for the Wang Theatre to sound as if there was no amplification. “During rehearsals John would often stand behind me. Getting back farther in the room, he’d get a warm and full sound. But turn the sound off, and it would collapse.” As he had done at the Esplanade, JFA used 3 microphones, left, right and center.

In 1991, the Ballet mounted an all-new production of Tchaikovsky’s SWAN LAKE that for the first time included dancers from the former Soviet Union. The sound system designed by Allen for these “glasnost” performances proved so transparent, it went entirely unnoticed as NEWSWEEK MAGAZINE and THE NEW YORK TIMES hailed what they called one of the best sounding orchestras in ballet.

The Ballet’s new and current home at the Boston Opera House has better acoustics. Though still needed, the amount of amplification is less.

Because of his successful work at the Boston Ballet, Allen was invited to visit the Sydney, Australia Opera House to consult with the orchestra about their troublesome pit as well as the house sound system.

McPhee: The pit at the Opera House needed to be moved out from under the stage. But there was a beam in the way that kept the building from falling down. It was replaced by a cable that was pulled back in tension to hold the building up and allow for the pit to be expanded. “The conductor is now sitting on front of the largest slingshot in the world. When the pit was so far under the stage, they separated the orchestra sections with Plexiglas panels. They had to rehearse three brass sections, that would be rotated among performances, because the sound was so loud in the pit that it endangered the player’s hearing.

Beginning in 1989, the HPS-4000 systems installed at General Cinema’s Framingham location became Allen’s lab. There have been a number of advances over the years, digital

sound being the most important. Recently a new amplifier from BGW uses balanced differential circuitry and is 1/10 the price of previous amplifiers of this type, \$500 to \$600 per channel vs. \$5000 to \$6000. There is no compromise to the sound. It also includes the new Thermaltrak transistors, virtually perfecting thermal as well as bias control while greatly reducing distortion. This new amplifier has 124 dB signal to noise ratio. At the speaker end, the latest tweeter and midrange drivers have improved treble response and reduced distortion.



General Cinema Framingham

Allen met Boston Philharmonic conductor Ben Zander on a flight from Los Angeles to Boston. Zander invited him to hear the Mahler 9th at both Sanders Theatre and Jordan Hall. When Zander was forming his new youth orchestra, he asked Allen to evaluate a room for him at Boston's Benjamin Franklin Institute that he wanted to use as a rehearsal space. The room had a very loooong reverberation time and was unusable as is. However, in listening to the room's tone, Allen became convinced that it could become a good space

by adding the right amount and type of absorption. He engaged noted acoustician Chris Blair to design what turned out to be highly successful modifications.

To close his slide presentation, Allen put up a picture of him sitting with his feet up in a first class suite on a Qantas Airbus A-380 in front of a private 17-inch video screen. He said, "As for flying, I like to sit back, relax and let someone else drive, all the while watching the whole thing on color TV."

Questions:

From the floor: "Why do theater owners take systems out? Don't they think that sound matters?"

Allen: There are pleasure centers in the brain that respond to good sound. But theater circuits are getting bigger and so there is more remote management.

From the floor: In terms of extending the market, are there new theaters installing these systems?

Allen: "My business is a roller coaster and always has been. Selling quality is hard. People are OK with watching a movie on an iPhone. You can hear better sound at home than you can at most theatres and yet many exhibitors still don't think it matters enough to do something about it. In terms of level and tone, Dolby has done a great job of standardizing the mixes at the different studios. This has made all the difference."

From the Floor: How did you come up with the HPS 4000 name?

Allen first used the four-way MCM first at the Century Plaza. He had originally named the four-way configuration the MCM system as the HPS-4000. Ed Plitt said that they needed a name of the sound system that could fit on a marquee. His publicist, Bob Artz,

had an answer. Why not call the speaker the MCM-4, and the sound system HPS-4000.

From the floor: How did Allen get in with American?

Allen: “I just walked in. Meeting Walter Terry in operations made everything possible.” Experiences at American Airlines have made him what he is in many ways and he can’t believe that they happened.

From the floor: Tell us about your friendship with Leo Beranek.

Allen: (pausing for a moment) “As far back as the 1970s, Brad Meyer was instrumental in making those of us at the BAS familiar with Leo’s work. I formally met Leo Beranek in 1985, at a BAS meeting I presented at Symphony Hall. I asked him to give us an acoustician’s tour. We published his talk in the AES JOURNAL. I was honored to have known and worked with him until his recent death. Jonathan McPhee and I were guided by his teachings in everything we did at the Ballet. He was both our friend and mentor. All of us were very lucky to have known him.

“At the Wang theatre one night with Leo there as our guest, a one-note ‘hoo’ sound was heard out of the pit. This had occurred once in a while before. Neither Jonathan nor I knew what it was. During intermission Leo walked up to the pit rail and looked around. Within a couple of minutes he spotted the source of the problem. The last riser of the last step up to the orchestra platform was open, creating a Helmholtz resonance. We ordered it fixed the next day and never heard it again.”

Southwick: The thing that makes the Metropolitan Opera broadcasts work is that it is the Met. When they tried to do symphony concerts, it didn’t work.

Southwick had been to Bayreuth: the pit was like cramming an orchestra into a tin can. How can it work? “The sound was incredible and so was the experience but how did they

do it?”

Bob Miller: Wagner designed it for the Wagner sound. You can't even see the conductor. Most of the sound is coming at you is reverberant.

Allen: McPhee has taken the Rite of Spring score and reduced it to fewer instruments.

McPhee: “Actually just reducing the orchestration.”

Allen: Jonathan also tackled the Mahler Third (the longest symphony every written) for the Boston Ballet performances.

Miller: Just listened to a wind band reduction of the Rite and it works surprisingly well.

Southwick: The Lexington Symphony Orchestra is first-class. Performances at Cary Hall are worth every penny you pay. The hall has improved lighting. The acoustics are good.

And with this, Allen thanked those in attendance for their interest and attention. Noiseux then called an end to the meeting.