

695 QUARTERLY

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VOLUME 3 ISSUE 3

695 QUARTERLY

THE OFFICIAL PUBLICATION OF IATSE LOCAL 695

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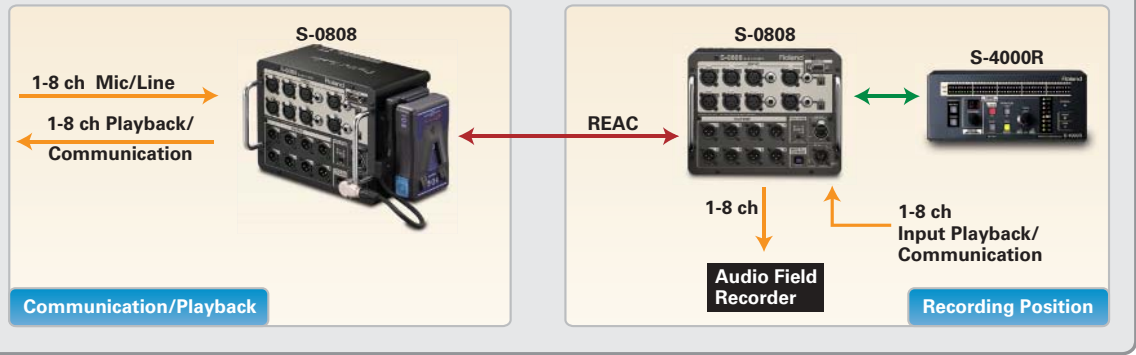
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Recording

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From the Editors



Visiting a set these days, there's hardly any eye contact. Heads are tilted down and a ghostly light frames their faces. It seems like everyone on production is living in their own solitary world. They're all staring at their PDAs, iPhones, Droids, Androids, tablets, iPads, either texting, reading emails, surfing the Web or occasionally, making phone calls.

The Web has taken over and virtually anything in print can be found there. That's why this publication and all the back issues are available to you 24/7 at <http://695quarterly.com/>

You also receive this magazine by mail and frankly, there is nothing better. No scrolling, no finger swipes, no expanding the text, just simple dignified page turning. Reading and rereading at your leisure, big and bright, just like the old days.

Members contribute an impressive range of interesting, informative material to each issue. It's a pleasure to share their experiences with you.

David Waelder continues to explore wireless antenna systems, in this issue it's transmitting antennas. Scott D. Smith, CAS delves into recording history with another installment of "When Sound Was Reel." We also have a fascinating interview with Courtney Goodin.

So whether you are reading this on your personal digital assistant or holding this great four-color publication in your hands, enjoy!

Fraternally,
Eric Pierce, David Waelder
and Richard Lightstone

695 QUARTERLY

I.A.T.S.E. Local 695
Production Sound Technicians,
Television Engineers,
Video Assist Technicians and
Studio Projectionists

Certified & Chartered September 15, 1930
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and L.A. Central Labor Council

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From the Business Representative

In Perspective

“A chicken in every pot and a car in every garage.”

— President Franklin Delano Roosevelt, January 11, 1944,
State of the Union Message to the U.S. Congress on the “Economic Bill of Rights.”



When at the age of 7, and invited into the sanctuary of my grandmother's bedroom, two elegantly framed portraits were displayed on the east wall.

One portrait was that of Pope Pius XII and the other portrait was Franklin Delano Roosevelt, then President of the United States.

I had acquired a certainty for the purpose why Pope Pius XII was so commemorated having attended Catholic elementary. I was uncertain about President Roosevelt's portrait and as is my nature, I inquired.

Grandmother confirmed he was the man we listen to on the radio giving his fireside chats. More importantly, my grandmother held Mr. Roosevelt in high esteem because of his advocacy of the “Second Bill of Rights,” which he presented in his State of the Union Address on January 11, 1944. President Roosevelt argued the “political rights” guaranteed by the U.S. Constitution and Bill of Rights had proven inadequate to protect and assure workers equality in the pursuit of happiness.

The remedy Mr. Roosevelt advocated was an “Economic Bill of Rights” which would guarantee every American the following:

- Employment, with a living wage
- Freedom from unfair competition and monopolies
- Housing
- Medical Care
- Education
- Social Security Retirement

That visit to my grandmother's room was

some 66 years past. President Roosevelt's “Economic Bill of Rights” was broadcasted the year before and, at the time, it was considered futuristic, extraordinarily progressive.

I totally understand my grandmother's reverence of President Roosevelt, especially today when so many Americans are beneficiaries of his foresight and what he accomplished. Yet this matter is again at the forefront of our concerns today.

I would appreciate hearing from you concerning your concerns on this matter. You may find President Roosevelt's January 11, 1944, State of the Union Message to Congress at http://www.fdrlibrary.marist.edu/archives/address_text.html And you may email me at Jim@695.com Keep apprised, best wishes.

Fraternally,
James A. Osburn, CAS
Business Representative
Executive Director



President Roosevelt in 1944

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MPTF Kicks Off the “Every Member Counts” Campaign



The Motion Picture & Television Fund (MPTF), along with the IATSE, have introduced the “Every Member Counts” fundraising and volunteer program. “Every Member Counts” wants to make union members aware that volunteering and contributions are needed to keep the Fund alive.

The Motion Picture & Television Fund was created in 1921 for the purpose of providing a safety net for those in the industry who need it the most. It is supported by fellow entertainment industry mem-

bers who have contributed to the Fund, knowing that if they were ever in a tight spot, the MPTF would be there for them too. The MPTF provides an array of services for eligible industry members, including emergency financial assistance, charitable services, social services, retirement living, senior care and services, counseling, childcare and more.

At the “Every Member Counts” launch event on June 15, 2011, the membership of Local 695 was represented by Business Rep James Osburn and Executive Board members Elizabeth Alvarez, Scott Bernard, Dean Striepeke, Peggy Names and Susan Moore-Chong, held at the Motion Picture & Television Fund’s Wasserman campus in Woodland Hills. Before beginning a tour of the campus, Local 695 projectionist

and retired IATSE Gold Card member Lester H. Fresholtz, a resident at the MPTF facility, spoke to the attendees about how vitally important MPTF services have been to him and to so many others in the motion picture and television industry.

In addition to contributions, volunteerism is another important way to help the Fund. For the past several years, Local 695 boom operator Mark Musella has been volunteering his time at the Motion Picture and Television Home in Woodland Hills as a “pool buddy,” assisting elderly patients getting in and out of the pool and also as a “fitness buddy” in MPTF’s state-of-the-art gym, helping patients who are exercising with weights and the fitness machines. Mark says the



MPTF volunteer and Local 695 member Mark Musella

youngest people there are in their 80s and are a very interesting and diverse group who have worked in all areas of the television and film industry. Speaking at the launch event, Mark explained that he has developed great relationships with some of the patients, and says, “I get much more back than I give.” (See the text of Mark Musella’s presentation to the right.)

Volunteer opportunities include MPTF Advocate Volunteers, Channel 22 (a closed-circuit resident TV station), Computer Tutors, Rebuilding Together & Home Safe Home Programs, Phone Buddies, Pet Care Program, Friendly Visitors, Grocery Shopper and Pool Buddies/Fitness Floor Buddies to name just a few. Donations to the MPTF can be made on a one-time basis or as a payroll deduction.

To find out more information about how you can get involved, please visit www.mptvfund.org/ia



From left: Scott Bernard, Susan Moore-Chong, Lester Fresholtz, Elizabeth Alvarez, James Osburn, Peggy Names, Dean Striepeke, and MPTF Senior Marketing Executive Arlene Glassner

From the Every Member Counts Campaign Launch Event

Presentation by Mark Musella, Local 695 Boom Operator

My wife Janice and I had been using the health center on the (Woodland Hills) campus for 30-plus years but never had much contact with any of the residents.

When the Saban Center for Health and Wellness opened, we happened in and got a tour of the facility. During our visit a resident using the gym asked, “What are the young people doing here?” We looked around to see what the young people were up to. Turns out it was us (I’m 62, my wife, a year younger). I decided I could hang out there. We both joined the gym and started attending regularly.

We started interacting with the residents, which erased any fears I had of aging. Watching the grace with which the elders live their lives is amazing. Always easy to start a conversation. Just have to ask, “What did you do in the industry?”

An opportunity to volunteer arose. I have been rather fortu-

nate in life and thought, here’s a chance to give something back. We have always supported the fund monetarily, but here was a chance to give some time. I’m still working on the giving part—I have received a heck of a lot more than I have ever given.

I volunteer as a “pool buddy” and “fitness buddy.” Pool buddies accompany those who need a little assistance in the Saban Center pool. They arrive in their walkers or wheelchairs. Once in the pool, they are free of their physical constraints and move around unhindered.

My most memorable pool buddy is a guy who is somewhere in his 80s. He was from upstate New York originally. He floats like a cork. I’m a good swimmer but wear a belt in case I have to help someone out of the water. This guy had no belt on and I still had to work to keep up with him as he swam around. Finally, he took a break. Flipped on his back; both hands behind his head all 10 toes sticking out of the water as he floated. Told me as a boy he used to enjoy swimming with his buddies in the quarries in upstate

(continued on page 10)

CSATF Environmental Safety

All Local 695 members must take the A-2 Environmental Safety course by October 31, 2011. This course covers a wide range of subjects, including studio lot & location safety, heat illness, severe weather, disaster/emergency response, environmental awareness, transportation of dangerous goods, electrical safety, and workplace cleanliness.

This is a required course as part of the Safety Pass program. Don’t risk any job opportunities by not completing the A-2 course by October 31. More information and sign-up is at www.csatf.org

Healthcare Options

Very low-cost partial coverage for members not currently qualified for the Health Plan

A new program called “Bridge to Health” offers limited healthcare services to members who have not accrued enough hours to qualify for the Motion Picture Health Plan. Available to members and their dependents age 13 and up, office visits cost only \$25 and lab services and X-rays are free when performed at the Motion Picture clinics. For complete details and eligibility information, see www.mptvfund.org/page.aspx?pid=528



Full healthcare for members who did not qualify

The Industry Advantage Health Plans offer members the chance to purchase full medical coverage using the doctors and resources of the Motion Picture & Television Fund. For details, see www.mptvfund.org/health-plans

“Health Wheels” takes healthcare on location

“Health Wheels” is a 33-foot mobile health center with two well-equipped private examination rooms and staffed with a doctor and licensed vocational nurse. “Health Wheels” is available to members covered by the Health Plan as well as members



participating in the “Bridge to Health” program (see above). To find out where Health Wheels will be next, visit the Health Wheels page at www.mptvfund.org/health-wheels

NEWS & ANNOUNCEMENTS

("Every Member Counts" continued from page 9)

New York. In that moment, I could clearly see him as a kid, not the 80-plus man in front of me.

I'm also a fitness buddy in the state-of-the-art Saban Center gym. I assist people with their workout and on the equipment.

This is where I met Chester Duncan, retired prop master, and member of Local 44. He immediately became my inspiration. If I'm fortunate enough to reach his age, I hope I'm in his condition. Hard to tell his age by looking at him but I learned he was 93. He was a lucid, fit, happy-go-lucky, go-with-the-flow kind of guy. Prided himself on knowing and greeting everyone by name. Everyone knew his name. He lived in the cottages and walked to the Saban daily. We'd have some conversation and workout.

As the years passed, he started to arrive using a walker. A little less workout and more conversation. Eventually, he started arriving on a scooter. As he approached 96, he moved from the cottages to the Frances Goldwyn Lodge—still making the daily trip on his scooter.

As 97 approached, he started to slow down a bit. Debra Greenwood (manager, Aquatic & Fitness Center) put together a workout routine Chester could do in his room. The highlight of my morning was going to his place for morning workout. After awhile, more conversation less workout.

He made his '97th birthday but was rapidly declining. I had met his daughter when she had some personal things

to take care of and asked if I could spend the morning with him. Of course, I said yes. She was afraid he'd wake up and be alone. (I, too, quite frankly, was concerned he might slip away alone.) I sat with him, he'd wake up for three or four minutes, greet me with "Well, hello there, Mark," then drift off to wherever he was headed. Never should have been concerned about him being alone either. Not 10 minutes would pass before someone stuck their head in the door to check on him. Staff from the floor, as you would expect; staff from all other parts of the campus, not what you would expect, and various other volunteers. Chester was not alone and was never going to be alone.

He passed away the next morning with his daughter in attendance.

Taught me one last lesson. I had a fear of growing old and being "put in a home." Motion Picture Home is not "a" home or "the" home. It's just home.

Easy concept for my IA associates to grasp. We spend our working day watching out for our union brothers and sisters.

The Motion Picture Home is where we look out for our moms and dads.

2012 Membership Directory

The deadline for submitting information to the 2012 Local 695 Membership Directory is October 2. If you've already entered your info, all previously submitted data will remain intact (presuming there has not been a break in your membership status) but please take this opportunity to verify and update as needed. The new edition will be published in December. To update or review your info, go to www.695.com/mbr/dir-review2.php

Wages Increase 3%

On July 31, 2011, minimum wages on the Local Basic Agreement increased 3%. Rate cards are available at www.695.com/mbr/contract.php

Union Cards

Local 695 wants to remind you that they are making more set visits, and they will ask to see your union card to verify membership. Please remember to keep your union card with you at work.

Production Tracking Database

Our database helps us protect the contract and protect your job. To enhance its effectiveness, it's important that you submit your job information now and each time you take a job. www.695.com/mbr/jobreport.php

Photos from the annual BBQ hosted by 695 members Michael (Kriky) Krikorian and Seth Gilbert



Kriky at the mike, Seth holding up the commemorative T-shirt. The logo design gets more complex every year.



Richard Lightstone and Andy Rovins (foreground) and Steve Hawk, Steve S. Nelson and Ed Moskowitz (background) enjoy the events.



Didn't Mark Greech win at the raffle last year too?

In Memoriam

HAROLD "BILL" VARNEY
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PETER A. GREGORY
Projectionist
Oct. 24, 1948 – Feb. 7, 2011

DONALD R. HANSARD SR.
Projectionist
Sept. 4, 1925 – Oct. 3, 2010

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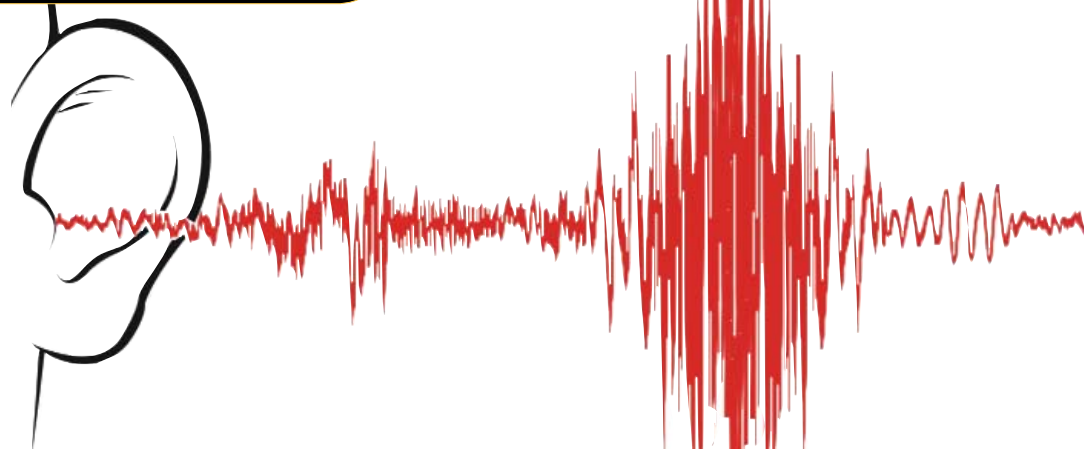


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by LAURENCE B. ABRAMS

Hearing Safety



“That Sound Mixer can hear grass grow!” It’s an expression we’ve heard often, suggesting that the Production Sound Mixer is capable of listening so intently as to be aware of even the slightest and most subtle of sounds. Quite true. Even as developments in digital audio processing provide more tools and methods for suppressing extraneous and unwanted sounds, there is still no substitute for clean tracks ... and when they get them, Sound Editors and Producers are thankful for the time and money saved when minimal repair is required.

This type of critical listening relies not just on training and knowing what to listen for but also on healthy ears capable of differentiating a wide range of the audio spectrum. That is why it’s so important to have an informed understanding of how to protect your ears from situations that can cause irreversible and perhaps, even career-ending hearing damage.

The auditory system is an extraordinarily intricate and fragile mechanism built for the singular purpose of converting acoustic energy into electrical energy. Once

transmitted to the brain, this complex surge of electrical pulses is processed and interpreted into the lush tapestry of voices, music and sounds that fill our world.

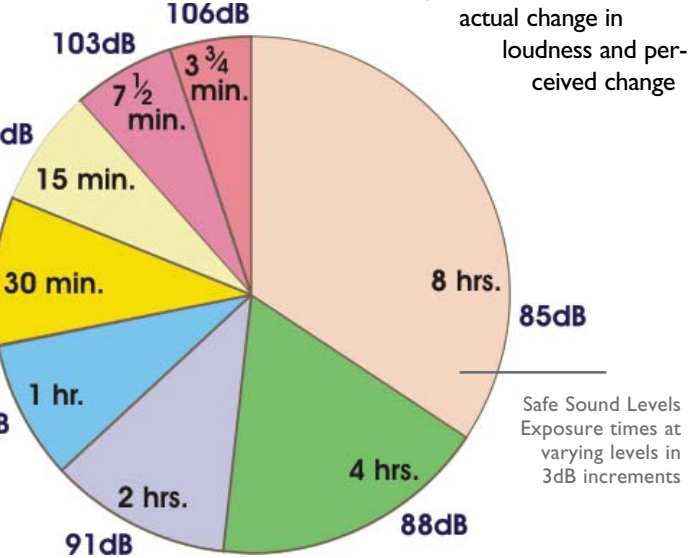
But this remarkably evolved sensory structure does not always perform fully up to spec. To a hearing specialist, a failure of the auditory system is described as either Conductive Hearing Loss or Sensorineural Hearing Loss. Conductive Hearing Loss can result from the buildup of earwax or from certain diseases and disorders. In such cases, a visit to an Ear, Nose and Throat (ENT) physician can often provide treatment that will improve hearing.

The prognosis for Sensorineural Hearing Loss, however, is less encouraging. This type of hearing loss is associated with a variety of nerve-based disorders and occurs when one of the two critical components of the auditory system are damaged or compromised. These two mechanisms are the microscopic hair cells of the cochlea, which vibrate in response to the sound waves they are

exposed to, and the nerve fibers, which transmit electrical signals to the brain. This type of hearing loss usually turns out to be irreversible.

Sensorineural Hearing Loss can be genetic, age-related, triggered by disease and high fever ... and it can be caused by excessive and cumulative exposure to very loud noises.

Repeated exposure to loud sound levels permanently damages the microscopic hairs of the cochlea, causing the gradual loss of hearing. This Noise-Induced Hearing Loss (NIHL) accounts for more than 30% of all cases of permanent hearing loss in the United States.



The main factors that impact Noise-Induced Hearing Loss are:

- Loudness
- Duration
- Frequency

Loudness, of course, is measured in decibels (dB). The decibel is a logarithmic unit of measurement, which is to say that an increase of 10dB indicates that the sound levels and the air pressures have become 10 times more intense. In a qualitative sense, however, that same tenfold increase in sound pressure tends to be perceived as though it were only about twice the loudness. This deceiving difference between actual change in loudness and perceived change

in loudness makes it all too easy to be unaware of potentially harmful sound levels. Furthermore, recent studies have shown that one’s perception of loudness diminishes significantly after prolonged exposure. The longer damaging noise levels are present, the greater the risk ... and yet the less likely you are to notice that the levels are so high as to endanger your hearing.

Damage to the ear can be caused either by very loud sounds in short duration (such as gunshots) or by moderately high-volume sounds that are longer in duration. At first glance, that message is fairly intuitive ... the louder the noise, the less time your ears can tolerate exposure to it before some degree of damage occurs. But the chart below reveals the reality about the nonlinear relationship between levels and exposure. **With just a 3dB increase in sound levels, the safe exposure time is cut in half ... and each subsequent increase of 3dB cuts the safe time by yet another half.** To put this into real-world perspective:

- With an average output of about 80dB, you can let the alarm clock ring all day long.
- A lawn mower putting out about 90dB can begin to cause hearing loss in a little more than two hours.
- Turn on the leaf blower at 102dB and you’re beginning to damage your unprotected ears after only about seven minutes.

- Some rock concerts are as loud as 120dB but even a more tame concert at 110dB starts to induce hearing damage in LESS THAN TWO MINUTES.
- A jet takeoff at 140dB? Do the math.

Noise-Induced Hearing Loss is cumulative and the higher frequencies are usually the first to go. You might not notice it after a single occurrence, but the effect is additive over time. Tinnitus (ringing in the ears) is another consequence of this type of hearing damage. While some of these symptoms are temporary, with a limited degree of recovery within 24 to 48 hours, the unfortunate truth is that all those rock concerts you attended in your care-free youth probably did chip away at your hearing. The only thing you can do about it now is to take measures to prevent it from getting worse.

Normal conversation	50 dB
Vacuum cleaner	75 dB
Electric razor	85 dB
Leaf blower	102 dB
Subway screech	115 dB
Rock concert	120 dB
.22 caliber rifle	130 dB
Jet take-off	140 dB
Firecracker	140 dB
Shotgun	170 dB
Rocket launch	180 dB

- After periods of exposure to loud sounds, give your ears a chance to rest and recover with a 15-minute break far from the noise source.
- It may be too late for you to undo the past damage but make sure to tell your kids that with ear buds plugged tightly into the auditory canal, their mobile phones and MP3 players need to be operated at safe levels at all times. And remind them that foam earplugs are cheap and easy to bring to music concerts and that there’s nothing at all “uncool” about wearing them ... in fact, if you look closely, you’ll see that almost every rock musician performing on the stage today wears a custom set of noise-suppressing earplugs at every performance.

Here are some things that you can do to reduce further hearing damage:

- Be aware that noises above 85dB can begin to cause hearing damage after prolonged or repeated exposure.
- Sounds very much louder than 85dB should be avoided whenever you can.
- Don’t run the gain on your headphones any louder than you absolutely need to and perhaps reduce the headphone level a little bit when the camera’s not rolling.
- When there is something loud happening on set, like Ritter fans or gunshots or trains or loud machinery, let your closed-ear headphones provide you with some protection by muffling the sound a little bit and consider using foam earplugs when practical.

Good hearing is essential for the work we do. Take measures to protect your ears from prolonged exposure to sound levels above 85dB. If you suspect that your hearing has diminished, see a physician who specializes in hearing disorders. Further information and advice about maintaining good hearing health and safety can be found on the website of the House Ear Institute at <http://www.hei.org>. Most importantly, be smart and protect your ears whenever you can.

Decibal Levels

Congratulations to the nominees and their production sound teams for the 63rd Annual Emmy Awards in the category of Outstanding Sound Mixing.

The Creative Arts Awards and Ball will be held on September 10, 2011, and will be broadcast Saturday, Sept. 17, at 8 p.m on the ReelzChannel.

Names in bold are Local 695 members

COMEDY OR DRAMA SERIES (HALF-HOUR) & ANIMATION



Modern Family
“Halloween”
ABC
Stephen A. Tibbo CAS, Dean Okrand,
Brian R. Harman CAS, Preston Conner,
Dan Lipe, Colin Campbell



Family Guy
“Road to the North Pole”
FOX
Patrick Clark, James F. Fitzpatrick CAS



The Office “Andy’s Play”
NBC
Ben Patrick CAS, John W. Cook CAS,
Peter J. Nusbaum CAS, **Brian Wittle,**
Nick Carbone, Mark Agostino



Parks and Recreation
“Andy and April’s Fancy Party”
NBC
Steve Morantz CAS, John W. Cook CAS,
Peter J. Nusbaum CAS, **Aaron Wallace,**
Mitch Cohn



Californication “The Last Supper”
Showtime
Daniel Church, Edward C. Carr,
Todd Grace CAS, **Abel Schiro,**
Lance Wandling

COMEDY OR DRAMA SERIES (ONE-HOUR)



Boardwalk Empire (Pilot)
HBO
Frank Stettner CAS, Jeff Pullman
CAS, Tom Fleishman CAS,
Irin Strauss, Claire Houghtalen,
Egor Panchenko



Mad Men “The Suitcase” AMC
Peter Bentley CAS, Ken Teaney
CAS, Todd Orr, **David Raymond,**
Chris Sposa



Dexter “Take It!” Showtime
Greg Agaloff, Pete Elia CAS,
Kevin Roache, Jeremy Balko,
Jeff Williams, Kim Podzimek,
Gary Raymond, Courtney
Goodin



Glee “The Substitute” FOX
Phillip W. Palmer CAS, Joseph
H. Earle CAS, Doug Andham
CAS, **Geoff Patterson CAS,**
Patrick Martens, Devendra
Cleary CAS, Mitchell Gebhard,
Allister Mann, Devin Golub,
Scott Solan

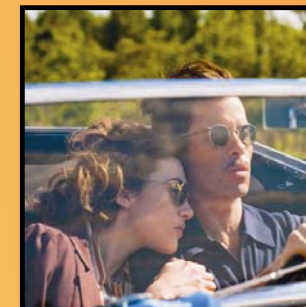


House “Bombshells” FOX
Von Varga, Juan Cisneros,
Joseph DeAngelis, Brad North,
Ken Strain, Mark Agostino,
Bobby Watkins, **Laurence**
Abrams, Linda Murphy



Burn Notice “Last Stand”
USA
Scott Clements CAS, David
Raines CAS, Sherry Klein CAS,
Fred Kupfer, Jacob Kemp, **Ray**
Rifice CAS, Michael Pisano

MINISERIES OR MOVIE



Mildred Pierce (Part Five)
HBO
Drew Kunin, Leslie Shatz,
Bobby Johanson, Joshua
Reinhardt, Mark Goodermote,
Jason Stasium



The Kennedys
“Lancer and Lace”
ReelzChannel
Henry Embry CAS, Frank
Morrone CAS, Stephen
Traub, Larold Rebhun, Denis
Bellingham, Zack Hunter



Cinema Verite
HBO
Petur Hliddal, Lora Hirschberg,
Scott Lewis, Douglas Murray,
Amanda Jacques, Frank
Stettner CAS



Too Big to Fail
HBO
Jimmy Sabat CAS, Chris
Jenkins, Bob Beemer CAS,
JJ Sabat, **Michael Schmidt**

LOCAL 695 emmys



VARIETY OR MUSIC SERIES OR SPECIAL



The 53rd Annual Grammy Awards
CBS
Thomas Holmes, John Harris, Eric Schilling,
Bob La Masney, **Eric Johnston**, **Michael**
Abbott, **Rick Bramlette**, **Jeff Peterson**, **Phil**
Ramone, **Barry Warrick**, **Andres Arango**,
Hank Neuberger, **Billy McCarge**, Dave
Rickmeers, **JP Velasco**, **Pablo Munguia**,
Steven Anderson, **Craig Rovello**, **Bill**
Kappelman, **Pete San Filipo**, **Ric Teller**,
Damon Andres, **Eddie McKarge**, **Paul**
Chapman, **Dennis Mays**, **Bruce Arledge**,
Mikael Stewart, **Kirk Donovan**, Dave Bellamy,
Grant Greene, **Ron Reaves**, **John Arenas**,
Matt Campisi, **Jim Fay**, **Thomas Ryden**,
Hugh Healy, Max Feldman, Hardi Kamsani,
Joel Singer, Charles Campbell, Anthony
Catalano, Gary Epstein CAS, Mike Babbitt



The 83rd Annual Academy Awards
ABC
Paul Sandweiss, Tommy Vicari, Kristian
Pedregon, **Pablo Munguia**, Josh Morton,
Bob La Masney, **John Perez**, **Eddie**
McKarge, Dan Vicari, **Patrick Baltzell CAS**,
Michael Parker, **Debbie Fecteau**, **Jeffrey**
Fecteau, **Ric Teller**, **Larry Reed**, **Hugh Healy**,
Dave Hewitt, Phil Gitomer, David Bellamy

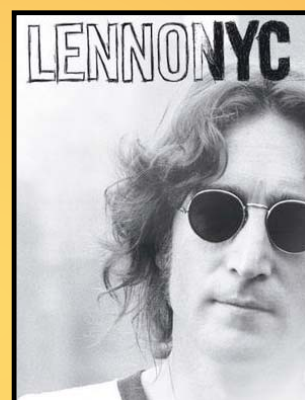


American Idol "Finale"
FOX
Ed Greene CAS, **Randy Faustino**, **Patrick**
Baltzell CAS, **Michael Parker**, Gary Long,
Brian Riordan CAS, Christian Schrader,
Debbie Fecteau, **Dennis Mays**, **Ric Teller**,
Ryan Young, **Billy McCarge**

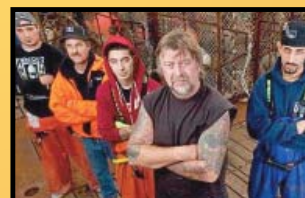
NONFICTION PROGRAMMING



The Amazing Race
"You Don't Get Paid
Unless You Win" CBS
Jim Ursulak, Dean Gaveau,
CAS, Jerry Chabane,
Bruce Beacom, Alfredo R.
del Portillo, Glenn Finnan,
Gustavo Gama Rodrigues,
Fernando Gironas, Burt
Gregory, Mark McIntyre,
Mickey McMullen,
Mike Ormsby, Ryan Sevy,
Barry Weisman



American Masters
"LENNONYC" PBS
Ed Campbell, **Scott**
Harber CAS, Roger
Phenix, Rob Stevens,
Simon Ware



Deadliest Catch
"Redemption Day"
Discovery Channel
Bob Bronow, CAS



American Idol
"Auditions No. 2:
New Orleans" FOX
Kamal I. Humphrey
CAS, **Phil Valdivia**, **Chris**
Tront, Brian P. Riordan
CAS, **Bennie McRae**,
Daniel McCoy CAS, **Tim**
Paul, **Jenn Raudman**,
Greg Ferrara



Gettysburg
History Channel
Dieter Keck,
Tumelo Maesela

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Mini-Mites and Miracle Whips: Testing the Transmitting Antennas

by David Waelder

Remote Audio sent us their version of a Comtek antenna, the Miracle Whip MW216, for evaluation as part of our sequence of antenna test articles. Since Comtek recently brought out the Mini-Mite, a smaller variation on their Phase Right series of antennas, it seemed a good time to turn our attention from receiving to transmitting antennas.

The Miracle Whip name sounds like it should be part of a tuna sandwich but it's a Lectrosonics SNA600 UHF dipole modified to operate at lower frequencies. Coated wires cut to the proper length attach to the folding wings of the SNA to tune the antenna to the 216-217 MHz band used by the base station transmitters. It's cleverly designed so the extensions mount using existing threaded holes on the SNA600. The resulting antenna retains the ability to fold for transport and is much smaller and lighter than the Comtek Phase Right antenna commonly paired with the base station transmitters. It is a bit more "prickly" but that's probably not a serious liability in actual use.

It performed very well in tests although not any better than the alternatives. We set up our usual test walk and measured how far we could get from the Comtek BST-25 base station before the signal degraded. We ran all the tests in the lower channels, the "Narrow Band." The "High Band" above Ch. 40 might offer improved range but relative performance should be the same. There was a pattern of performance typical to all the antennas we tested: the signal would be very clean for about 250-300 feet and then a thin swirl of background hash would creep in. This background hash can float in and out and is well below voice levels; it might pass unnoticed in a scene with active talking. Vulnerability to hits and dropouts became pronounced around 550 feet although we had some test runs that were OK out to 700 feet. As always, we maintained good line of sight between the antennas and suspended testing if any bogeys wandered into the testing area. Performance on an actual set with crew people moving about is likely to be less.

We were surprised that we achieved some of the best performance with the telescoping antenna that comes packaged with the transmitter. In several test runs, it was consistently artifact-free to about 400 feet and maintained good signal to at least 550 feet. The other antennas sometimes exceeded that range but, in the first series of tests, all exhibited the floating hash 50 or 100 feet earlier. The base station was three feet above ground on the shelf of a Mag-liner cart for these tests.

The Comtek Phase Right and the Miracle Whip antennas had very similar performance. They were connected to the transmitter by six feet of RG-8X cable and held aloft by a C-stand. Height was adjusted so the center point of the antenna would be six feet above ground. We had clean transmission from both for at least 250 feet. The thin background hash became noticeable somewhere between 250 and 350 feet and we began to experience hits and dropouts around 500 feet but occasional test runs were OK to 600 feet and beyond. The results of multiple test runs sometimes favored the Comtek and sometimes the Miracle Whip.

We had an old VHF Phase Right on hand and tried it out. Although tuned to 169 MHz, it worked very nearly as well as the others. We made only a couple of runs with this "off label" use but achieved clean operation free of background hash to 270 feet. Performance was slightly degraded starting around 355 feet but we didn't experience significant dropouts until 540 feet. Tuning to exactly 215 MHz does not appear to be critical in this application although the others did have about 10% or 15% better range. It wouldn't be the best choice if you were buying fresh but it could be used successfully if you already have one in your kit.

We acquired a Mini-Mite for a second round of tests. This new design from Comtek is a half-wavelength dipole with a tube base, like the Phase Right but much shorter. Rather than a "rubber-duck" antenna extension, it comes fitted with a 23-inch rigid wire whip.

Performance of the Mini-Mite was consistently good. We achieved at least 300 feet before hearing any artifacts and twice recorded 400 feet of clean range. The signal became vulnerable to hits around 500 feet but would continue to be usable out to 600 or 650 feet. On one occasion, we walked more than 700 feet before we deemed the results unacceptable.



Above, left to right: Comtek Mini-Mite Antenna, Remote Audio Miracle Whip Antenna and Comtek Phase Right Antenna
Bottom: Antenna Comparison Chart

We also had good results that day from the Remote Audio Miracle Whip, observing clean signal out to 400 feet. Performance was a bit "iffy" but usable from 475 feet and didn't become unacceptable until 630 feet.

Each test walk yielded slightly different results that would favor first one design and then the other. The overall pattern was very similar. Audio was clean to at least 300 feet, vulnerable but still usable starting around 450 feet and significantly compromised from about 600 or 650 feet.

Although the Phase Right, the Mini-Mite and the Miracle Whip do not seem to offer any performance benefit over the standard antenna, they do serve a useful function. Optimum performance from the telescoping antenna requires locating the transmitter on a top shelf of the cart so there is room to extend it. The remote antennas achieve good performance with the transmitter more conveniently located.

Since the performance is so similar, it makes some sense to choose based on size and weight considerations and price. At \$186, the Phase Right is the most expensive of the bunch and its 19-inch tube base makes it a bit unwieldy. The Mini-Mite is less expensive, performs at least as well and is considerably smaller. Weighing only 4.5 oz, the Miracle Whip is the smallest and lightest antenna we tested and also the least expensive.

Acknowledgments

We are grateful to Glen Trew and Jane Baxter at Trew Audio and Josh Harper of Remote Audio for supplying the Miracle Whip, to Robert Anzalone in the Location Sound Corporation Rental Department for the loan of Comtek equipment and to Will Tarr in LSC Weights and Measures for his assistance. And, as always, we owe a debt of gratitude to Scott Harris, who supplied the measuring wheel and all of the grip support gear and actually walked many of the tests.

Antenna:	Comtek Phase Right
Base	
Dimensions:	Tube 2.7" diameter x 19" tall
Whip:	12.75" rubber duck
Weight:	1 lb. 2 oz.
Price:	\$186.00
Antenna:	Comtek Mini-Mite
Base	
Dimensions:	Tube 2.7" diameter x 4.7" tall
Whip:	23" metal whip
Weight:	8.7 oz.
Price:	\$139.95
Antenna:	Remote Audio Miracle Whip Complete (incl. SNA600)
Base	
Dimensions:	Arm 2.5" deep x 1" high w/6.75" folding arms
Whip:	2 metal whips yielding 26.125" when spread
Weight:	4.5 oz.
Price:	\$125.00
Antenna:	Remote Audio Miracle Whip Kit (not incl. SNA600)
Base	
Dimensions:	Lectro SNA600 provided by user
Whip:	2 metal whips, 9.75" each
Weight:	.21 oz.
Price:	\$30.00



Courtney Goodin working on *Roar*. (Photo: Laurence Abrams)

a profile of Courtney Goodin

by David Waelder

Part One: The Analog Years

Courtney Goodin is an inveterate tinkerer, the sort of fellow you hesitate to show a new toy for fear he might tear it apart on the spot to learn how it works. He's been fooling around with sound equipment since he got his first tape recorder as a child 50 years ago. By altering the speed of the tape, he learned to create effects and was soon recording the general announcements that his school would play over the classroom loudspeakers. He even added sound effects.

The '60s decade was a propitious time to be a techie as radio and television were rapidly expanding their coverage and universities began to offer courses in the new media. Courtney got his Third Class FCC license when only 15 and was soon working nights and weekends at a local San Antonio radio station. On some weekend and late-night shifts, he was often the only one in the station and was responsible for keeping the official FCC logs and for powering up or down the 50,000-watt transmitter.

Working at the radio station, he met a fellow DJ who was additionally working as a cameraman for KLRN-TV. That association led to occasional work filming events for KLRN.

A World's Fair in San Antonio in 1968 led to further opportunities. Capitalizing on local events, the TV station did a live show every weekday with feature stories and interviews. Courtney remembers: "I got to experiment a lot and do a lot of creative work there because they just didn't want to pay anybody above minimum wage. But they gave you freedom to use a brand-new multimillion-dollar studio—a color TV studio at our disposal. So it was quite a learning experience, and I learned a lot there."

By the time he enrolled in college, he had already been working in the radio/TV field four years. While still an undergraduate, he found himself teaching some courses in sound and radio broadcasting at the University of Texas (UT). His enrollment in the Radio-TV-Film Department came just as the department was expanding and building a new television facility. The department tapped him to draw up the bid specifications for the project and that "was a great learning experience too."

He purchased his first Nagra about 1971 and began working in low-budget features. In addition, he made industrial films with other graduates of the UT film program. They made training films for the Department of Public Safety including several that instructed Texas Rangers in the use of deadly force and proper firearms procedures. As the sound guy, Courtney wasn't needed for every shot and was frequently tapped to be the assailant or bad-guy-with-the-knife in these films. For years after, any police officer stopping him for a traffic matter would have the vague sense they had met under unsavory conditions and Courtney would have to explain the origin of the bad impression.

At that time, there was no union representation for Texas film crew people. Local 205 represented stagehands but there was no mechanics local. Courtney was doing behind-the-scenes filming on Gordon Parks' *Leadbelly* in the Austin area when his lack of union credentials became an issue. *Leadbelly* was a union show and even the behind-the-scenes technicians were expected to have credentials. Gene Cantamessa, the sound mixer on *Leadbelly*, signed Courtney's application for Local 205 membership and helped facilitate his acceptance into the Local. Courtney and his UT partners worked to form a cinetechnicians group within Local 205.

Courtney continued to work as a production mixer on industrial films and also did some stagehand work and occasionally worked as a lamp operator and electrician. "Whatever work there was in the movie business, you have to pretty much do to stay alive." When feature films would come to town, he sometimes worked in the Sound Department as a third.

In 1975, he was hired on *Hawmps!* as boom operator for Dallas-based mixer Bruce Shearin. "It was a crazy movie based on a true story about camels in the cavalry... It was a great film to work on. All the actors were great comic character actors like Slim Pickens, Denver Pyle, Jack Elam, James Hampton... So I got to know all these guys. It was a great fun—little bit of a torture to work on—being in Tucson, but great fun to work on. And cold. I never thought the desert could be so cold. We did scenes out in the desert where someone was supposed to be laying by this pond of water and we'd have to get flamethrowers out to thaw the water out so we could shoot the pond."

With a legitimate feature credit on his resume, he decided it was time to come out to Hollywood and exploit some of the contacts he'd made. But he found he couldn't get into the sound local here even though he had been a member of Local 205 in Texas for years. Making the best of a difficult situation, he found that his Local 205 contacts could get him permit work with Local 33. He'd phone in every day and be sent out on a variety of different assignments, rewiring lights over at Bardwell & McAlister or wiring the big board at *Family Feud*. For a natural tinkerer, it was an opportunity to learn more about how everything worked.



Courtney in his office at ProPrompt Inc.

He continued to work in sound, doing low-budget, nonunion pictures whenever there was an opportunity. An associate from Austin was working as an editor on a film called *Roar*, a "crazy film ... about a guy living in a big house in Africa with a bunch of lions and tigers and other jungle cats." They needed a sound recordist and Courtney interviewed for the position. But he wanted to use his own gear, rather than equipment supplied by the production, and he asked for more money than they could afford. Oh, well.

About a week later, he received a call from the *Roar* production company agreeing to all his terms and asking him to come out to the location right away. It seems that the fellow they hired had a mishap with their Nagra and they needed a replacement. They had already gone through a number of mixers on the project. Nearly every scene featured multiple lions or tigers wandering through the set and sound people had a tendency to remember prior bookings after they did a scene with six or eight lions. Courtney agreed to come in and take over the project, at least temporarily, and also train the very green mixer to work as his boom operator. He ended up staying for many months and trained not just Laurence Abrams but also, later, Tim Cooney who was originally one of the animal handlers.

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The Talk Back Box became a common item in kits of local sound mixers.

Roar presented a number of challenges that demanded more than the usual amount of ingenuity to meet. Not the least of these was the antipathy the cats had for the boom. Noel Marshall, the producer/director/cat trainer (as well as lead actor), would often demand that the boom pull out because it was distracting the lions. Couldn't have that. Courtney rigged plant mikes throughout the set to capture audio when it wasn't possible to use a boom. Since multiple cameras were routinely used to capture events as they happened, it wasn't possible for him to set up in the same room as the action. He rigged a video camera in an inconspicuous place that had a good view of the whole playing area and watched a remote monitor to judge when to fade up the various plant mikes.

The presence of the big cats was integral to the story and the crew would often wait for all the elements to align just right and then roll cameras spontaneously. On some days, they shot 50,000 feet of film this way. With several cameras shooting and cutting independently, and no reliable slates, syncing all the film was a nightmare. Coordinating with Panavision, Courtney modified the remote roll switches for the cameras so he would have an indicator light when a camera turned on and would know to roll the Nagra. When that camera switched off, it would momentarily trip the Nagra's internal oscillator to provide a sync mark. He would attach the modified cable to whichever camera had the widest view and the editors would visually match the other cameras to the master.

Courtney continued to work on the film for more than two years, staying on as post-production supervisor after filming wrapped. Since the ranch in Soledad Canyon was so distant, he and others took to living in trailers during the week so they wouldn't need to commute. A flash flood during the rainy season nearly washed the whole enterprise away and Courtney escaped only because of a late-night alert from the assistant editor. He and some others spent a very cold night in a tree on a thin spit of land with water rushing on either side. All the trailers with the editing gear, work print and tracks were washed down the canyon. The negative was safe in the MGM lab vaults and Courtney had had the foresight to move the 1/4-inch tape to a safe place. The next several weeks were spent digging KEM editing machines out of mud, hosing them down and taking them apart for a complete cleaning and rebuild. For Courtney, this calamity was another opportunity to hone technical skills.

Virtually every invention Courtney has made was to address a need that was not being met by equipment manufacturers. Few field mixers were available for the Nagra and none of them had a way to feed audio to a boom operator. Courtney set about making a remote roll switch that would provide a slate mike, audio feed to the boom operator and automatic tail tones at the end of every take. In a box

about the size of a CB radio mike he put: "...a condenser mike, mike pre-amp, audio headphone amplifier for the boom man, remote roll switch, logic that would control the Nagra, start-stop and generate two tail tones that go at the end of every take. Besides a slate mike, it had a private line talkback to the boom man. The slate switch would open the slate mike to the recorder and roll the tape for the ID. I could use the PL button to talk to the boom man during the take without it going on the tape. Since he had a separate amplified feed, we could adjust his headphone level, separate from mine."

Although originally made just to meet his own needs, so many mixers asked him to make one for them that Courtney marketed the Goodsound Talk Back Box through Audio Services Corporation (now Location Sound) and sold hundreds.

He also developed an add-on pre-amp for the Nagra. The pre-amps used in Nagra recorders at that time were modular components that could be purchased separately and swapped in the recorder depending on whether one needed a standard 200-ohm unit or one with T-power. Courtney built them into a housing that could connect to the mixer input of the recorder and provide an additional input. He cleverly designed it so that the external pre-amps could be daisy chained, effectively making a mixer that could be assembled with as many channels as needed. He sold a few but never actively marketed it.

The first personal computers came out in the mid-'70s and Courtney was an early adopter. He had taken a course in computer software in college and had done a little programming in Fortran but had little formal training. By the time he was experimenting with writing for his Radio Shack Model One, the process of saving files had moved from punch cards to cassette tape but it might still require 20 minutes to load a program. Even so, he was enthralled by the possibilities and purchased an Atari 400 for its color graphics as soon as they became available.

He began writing programs for the Atari as well and developed a program for creating and editing computer graphic images called "Graphic Master" that he successfully marketed through DataSoft, a game and utility software company in Northridge. He also figured out a clever way to print in color with a dot-matrix printer using multiple passes and color carbon paper. He marketed that program through DataSoft as well until carbon paper became less available and the printer companies began offering multi-color ribbons. But all of this tinkering yielded familiarity with the graphics possibilities of the Atari processor and led to another product. But that is a subject for the next installment.

The next installment will cover the development of computerized teleprompting and audio software.



The add-on preamp Courtney developed for the Nagra



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When Sound was Reel-7

Author's note: After a brief detour to examine some of the early history pertaining to Local 695, we now continue with our regularly scheduled program. We will continue to re-visit the continuing history of the Local in future issues.

Introduction

In the previous installment of “When Sound Was Reel,” we examined the proliferation of the “Widescreen Epic,” a format developed by the major studios to counteract the rise of broadcast television in the early 1950s. Although widescreen films would continue to be produced through the late 1960s, studio bean counters were becoming increasingly critical of these films, which typically involved significant costs for 65mm camera negative, processing, sound mixing and magnetic release prints, not to mention the large and expensive casts. As the novelty of a wide-screen presentation with stereophonic sound began to wear off, studios were rethinking the costs associated with such productions.

Despite the success of a few 70mm releases during the 1960s, notably *Lawrence of Arabia*, 2001: A Space Odyssey and *Woodstock*, by 1970 the format had largely run its course. With the development of liquid gate printers, it was now possible to achieve a good blowup from original 35mm negative. When figuring the efficiencies of working with standard 35mm camera gear, no studio would consider the cost of shooting in 65mm worth the effort. Even *Dr. Zhivago*, released by MGM in 1965, was blown up from a 35mm camera negative.

However, the epic films established a new benchmark in quality and audiences came to expect something more than a 1.85 (aspect ratio) picture with mono sound, presented with projection equipment originally developed in the 1930s and '40s. Moreover, by



70mm film strip with 4-track mag, two audio channels, two control tracks

Left and above: 35mm Cinemascope compared with 70mm

this time, quality home stereo equipment was becoming widely available and many consumers owned reel-to-reel tape decks that surpassed the fidelity of even the best 35mm optical track. If studios expected to provide a premium entertainment experience that justified the expense of the ticket, they would need to improve the overall quality of their films.

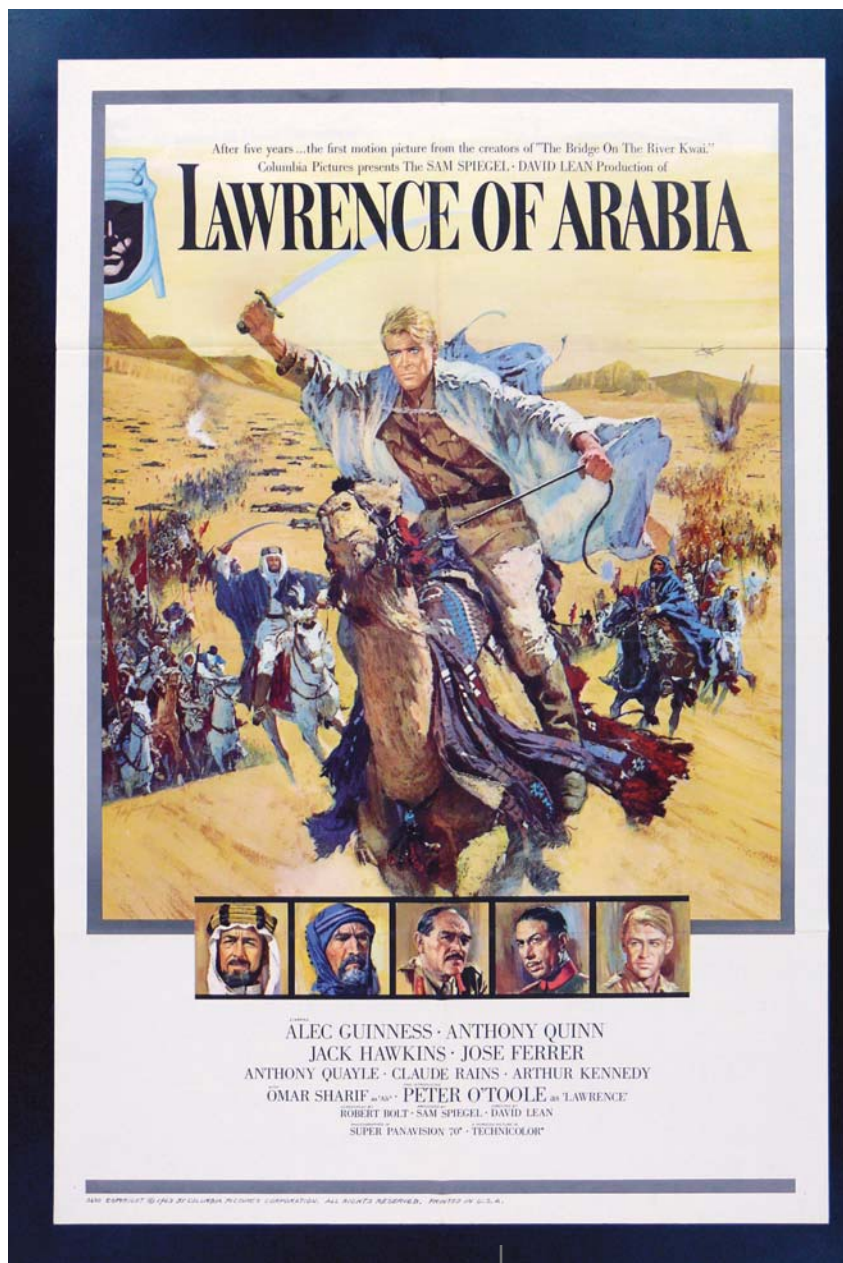
Raising the quality standard of 35mm prints to meet the expectations of road show pictures shot in 65mm (and released in 70mm with magnetic soundtracks) was a considerable challenge. While 70mm releases, even those produced from 35mm negatives, continued to be considered the “gold-standard” for big-budget releases, by the early 1970s, the advances made in print stocks, laboratory procedures and optics were beginning to shrink the gap in terms of the picture quality that could be derived from a good quality 35mm print vs. a 70mm blowup. However, the issues in regards to sound remained. Although 4-track magnetic Cinemascope prints were still in fairly wide use during the 1960s, there were considerable costs for striping and sounding onto the special “Foxhole perf” stock (with smaller sprocket holes to allow space for the mag tracks). In addition, theater owners were balking at the costs associated with replacing the 4-track magnetic heads, which wore out quickly (this was before the advent of ferrite heads).

Advances in the quality of 35mm mono optical tracks had been mostly in the area of negative and print stocks. These yielded slight improvements in frequency response and distortion but were still a long way from the quality that the average consumer could derive

from a halfway decent home stereo system of the era. For the most part, significant development in optical tracks had stalled out in the 1950s, at the time most studios were directing their efforts at widescreen processes. Most of the optical recorders still in use by the early '70s were derived from designs dating back to the 1940s, and had seen little innovation, except in the area of electronics, which had been upgraded to solid state.

Multi-Track Magnetic Recording

While the film industry was wrestling with issues of how to improve sound reproduction in a theatrical environment, other innovations were taking place in the music industry. Chief among these was the advent of multi-track analog recording, a process largely attributed to guitarist Les Paul. Since the 1930s, Les Paul had experimented with multi-layered recording techniques, whereby he could record multiple instances of his own performances, playing one part and then adding subsequent layers. His first attempts used acetate disks which, predictably, resulted in poor audio quality. Later on, Les Paul worked with Jack Mullin at Ampex, who had been commissioned by Bing Crosby to develop the Ampex 200 recorder. Recognizing the obvious advantages of working with magnetic tape as opposed to acetate disks, Les Paul took the Ampex 200 recorder, added an additional reproduce head in advance of the erase and record head, and developed the first “sound-on-sound process.”



Lawrence of Arabia 70mm

by Scott D. Smith, CAS

The downside of this, of course, was that each previous recording would be destroyed as a layer was added. Seeking a better solution, in 1954 Les Paul commissioned Ampex to build the first 8-track one-inch recorder, with a feature called “Sel-Sync®,” which allowed any track to be reproduced through the record head, maintaining perfect sync with any newly recorded material and not destroying the previous recording. This technique would go on to become the mainstay of multi-channel recording for both music and film well into the 1980s.

In this regard, Les Paul and the engineers at Ampex were true pioneers, developing techniques that would forever change the way that music was recorded. There was, however, one small problem. Noise.

Enter Ray Dolby

About the time that Jack Mullin and his team were improving audio recording, another Ampex engineer, Ray Dolby, a bright fellow from Portland, Oregon, was working on the early stages of video recording. Armed with a BS degree from Stanford University (1957), Dolby soon left Ampex to pursue further studies at Cambridge University in England upon being awarded a Marshall Scholarship and NSF Fellowship. After a brief stint as a United Nations advisor in India, he returned to London in 1965 and established Dolby Laboratories. His first project was the development of a noise reduction system for analog recording, which was christened as “Dolby A.” This multi-band encode/decode process allowed program material to be compressed into a smaller dynamic range during recording, with a matching expansion during playback.



Ray Dolby (third from left) in 1956 with the team of Ampex engineers who developed the first practical videotape recorder.

Les Paul with his first 8-track recorder. (Photo: Shannon Patrick, from documentary *Les Paul Chasing Sound!*)

The first processor that Dolby designed was a bit of a monster. The Model A301 handled a single channel of processing and took up five units (8.75 inches) of rack space! Needless to say, it didn't catch on in a huge way for multi-channel work. However, it made inroads into the classical recording market, especially in the UK. Understanding that the real market would be in multi-channel recording, Dolby quickly followed up with the release of the model 360/361 processors, which used a single processing card (the Cat 22), and took only one unit of rack space per channel. While this cut down the amount of rack space required for eight or 16 channels of noise reduction, it was still a bit unwieldy. In 1972, Dolby took the development a bit further, with the release of the Dolby M system, which combined 16 channels of Cat 22 processing cards in a frame only eight rack units high. By utilizing a common power supply and smaller input/output cards, this system provided a much more cost-effective solution to multi-track recording.



Dolby A301 (1966) provides one channel of Dolby “A” noise reduction

Dolby Consumer Products

About two years after the release of the Dolby A301 processor, Henry Kloss (of KLH fame) persuaded Dolby to develop a simplified version of the Dolby A system for consumer use. In response, Dolby developed what is now known as the “Dolby B” system, which has found its way into millions of consumer products over the years. Unlike the Dolby A system, it utilized a single band of high-frequency companding, designed to overcome the most conspicuous defects of consumer recorders, and required a minimal number of components.

Having firmly established itself in both the professional and consumer music recording market, Dolby turned to the next challenge: film sound recording.

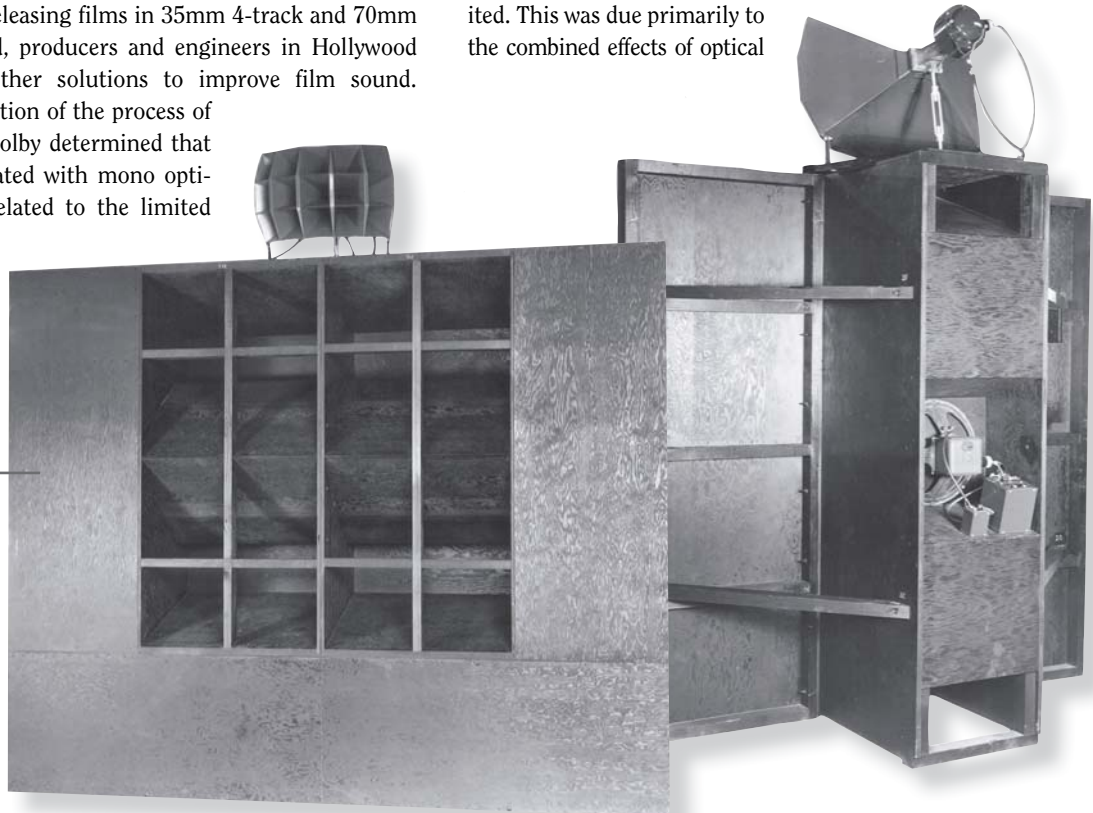
The “Academy Curve”

As the enthusiasm for releasing films in 35mm 4-track and 70mm 6-track magnetic waned, producers and engineers in Hollywood began to search for other solutions to improve film sound. During his initial evaluation of the process of film sound recording, Dolby determined that many of the ill's associated with mono optical soundtracks were related to the limited

response (about 12.5 kHz on a good day), as well as the effects of the “Academy Curve,” which had been established in the late 1930s. To understand how this impacted film sound, one needs to look at the development of early cinema sound systems, many of which were still in use up through the 1970s. Most early cinema sound systems (developed by RCA, Western Electric and RCA), had paltry amplification by today's standards. In the early 1930s, it was not unusual for a 2000-seat house to be powered by a single amplifier of 25 watts or less! To be able to obtain a reasonable sound pressure level required speaker systems of very high efficiency, which meant that horn-based systems were the order of the day. Although quite efficient, most of these early systems had severely limited HF response. This was OK, though, as it helped to compensate for the problems of noise from the optical tracks.

However, compensating for the combined effects of high frequency roll-off and noise from optical tracks meant that high frequencies needed to be boosted during the re-recording process. Typically, this involved some boost during re-recording with further equalization when the optical negative was struck. While this helped to solve the problems associated with noise and HF roll-off during reproduction in the theater, it also introduced significant HF distortion, which already was problematic in the recording of optical tracks. Excessive sibilance was usually the most glaring artifact.

While the development of new cinema speaker systems in the mid-1930s (most notably the introduction of the Shearer two-way horn system in 1936) improved the limited response of earlier systems, the HF response was still limited. This was due primarily to the combined effects of optical



Front and back of the Shearer system

reproducer slit loss, high frequency losses from speakers located behind perforated screens, and amplification that was still anemic by today’s standards.

Engineers of the Academy, working cooperatively with major studios, put into place a program to standardize sound reproduction in cinemas. Recognizing that many theaters still employed earlier sound systems with limited bandwidth, the Academy settled on a compromise playback curve that would not overly tax these systems. They settled on a playback curve at the amplifier output that severely rolled off around 7 kHz. This is about the quality of AM broadcast radio. Thus was born the “Academy Curve” which would be the standard for about 40 years.

The Academy Curve Gets a Makeover

In 1969, an engineer by the name of Ioan Allen joined Dolby Laboratories and quickly began a systematic examination of the entire cinema reproduction chain. Working with a team of four engineers, Allen examined each step in the sound recording process, including location production recording, re-recording, optical recording and subsequent theatrical release. Some of what he found was surprising. Although magnetic recording had been introduced to the production and re-recording stages of film sound recording in the early 1950s, the advantages of the superior response and S/N ratio were largely negated by optical soundtracks and theater sound systems. While Allen and Dolby ultimately determined that optical tracks could be improved upon, trying to change the standards of the industry overnight was a huge order. Allen and Dolby engineers decided first to test some theories by addressing the production and re-recording part of the chain, which began with work on the music for the film *Oliver* in 1969.

Following those tests, Dolby A noise reduction was employed for some of the music recording on *Ryan’s Daughter*, which was to be released in 70mm magnetic. However, Allen and the engineering team at Dolby were frustrated by the fact that very few of these improvements actually translated into improved sound reproduction in the theater. Seeking to solve the issues related to the limited quality of the optical tracks of the day, Dolby Labs arranged to make a test using one reel from the film *Jane Eyre* with Dolby A applied to the optical soundtrack. The results were rather disappointing; the noise reduction did nothing to compensate for the limited HF response and audible distortion.

During the mix of Stanley Kubrick’s film, *A Clockwork Orange*, Allen and Dolby convinced Kubrick and composer Walter Carlos to use the Dolby A system for premixes. However, the final release of the film was still in Academy mono. It was during these tests at Elstree Studios that Allen and Dolby determined that limitations of the Academy curve were to blame for many of the problems associated with mono optical tracks. Allen found that the measured room response at Elstree main dub stage (using Vitavox speakers, a two-way system comparable to the Altec A4) was down more than 20 dB at 8 kHz! This was in line with earlier findings by others. To compensate for this, post mixers would have to severely roll off the low end of most tracks and typically boosted the dialog tracks at least 6 dB in the area from about 3 kHz to 8 kHz. Predictably, this severely exacerbated the problems of distortion in the optical track, which typically had a low-pass filter in the system around 10–12 kHz to control distortion and sibilance. When one looked at the chain in its entirety, it was obvious that a huge amount of equalization was taking place at each of the various stages.

Around this time (late 1971), one-third octave equalizers and higher power amplifiers, were becoming available and being used in music recording. Notable among these was the Altec model 9860A one-third octave equalizer and 8050A real-time analyzer. Along with improvements in crossover design, these developments in room equalization and measurement technologies brought a new level of

sophistication to auditorium sound systems and studio monitors alike.

With the advent of one-third octave equalization and good measuring tools, Allen, along with Dolby engineers, conducted further tests at Elstree Studios in late 1971 through 1972. The first thing they did was to position three KEF monitors in a near field arrangement (L/C/R) about six feet in front of the dubbing console. Based on a series of measurements and listing tests, it was determined that these were essentially “flat,” requiring no equalization.

They then inserted one-third octave equalizers into the monitor chain of the standard Vitavox behind-the-screen theater monitors and adjusted the equalization for the best subjective match to the KEF monitors located in the near-field position. While

they were not surprised to find that the low-frequency response and crossover region needed to be corrected, they were rather miffed by the fact that the best subjective match between the near-field monitors and the behind-the-screen system indicated that the listeners preferred a slight roll-off in the high frequencies of the larger screen system. This was attributed to the psycho-acoustic effect of having both the picture and sound emanating from a faraway source (about 40 feet, in the case of the Elstree stage), as well as the effects of room reverberation, coupled with HF distortion artifacts. At the end of the day, however, they determined that a flat response for the screen system was not a desirable goal. This was a good thing, as it was virtually impossible to achieve in the real world.

Theater Sound in the Real World

About two years prior to the work that Allen and Dolby engineers conducted at Elstree, some significant research on sound reproduction in the cinema was published in three papers in the December 1969 issue of the *SMPTE Journal*. First among these was a paper somewhat dryly entitled “Standardized Sound Reproduction in Cinemas and Control Rooms” by Lennart Ljungberg. This was most notable for its introduction of the concept of “A-chain” and “B-chain” designations to cinema sound systems, with the “A-chain” representing all parts of the reproducer system up to the source switch point (i.e.: magnetic sound reproducer, optical reproducer, non-sync sources, etc.) and the “B-chain” comprising everything from the main fader to the auditorium system.

In the same issue were two other papers, one from Denmark, titled “A Report on Listening Characteristics in 25 Danish Cinemas” by Erik Rasmussen, and another from the UK, “The Evaluation and Standardization of the Loudspeaker-Acoustics Link in Motion Picture Theatres” by A.W. Lumkin and C.C. Buckle. Using both pink noise and white noise measurements, both of these papers presented some of the first modern evaluations of cinema acoustics and loudspeaker systems, and defined the challenges in the attempt to mix a soundtrack that could be universally presented in varying theaters. It also provided the basis for what would later become known as the “X Curve,” which would define a standardized equalization curve for cinemas worldwide (or, at least, that was the intent).

Standards? Who Makes These Things Up?

The origination of the “X-Curve” dates back to May of 1969, when engineers associated with the SMPTE Standards Committee held a meeting at the Moscow convention in an attempt to codify international standards related to film sound reproduction. The first draft standard produced by this committee called for a response that was down 14 dB at 8 kHz, using either pink noise or white noise inserted at the fader point in the chain (thus removing the “A-chain” characteristics from the final results). While this was a good start in standardizing theater reproduction characteristics, it was still a long way from the “wide range” playback standard that Dolby engineers envisioned. Work continued for another three years, during which time some significant wrangling occurred within the various standards committees. It would take until 1977 for an International

Standard to be approved, which subsequently became the basis for SMPTE Standard 202M, defining the characteristics for dubbing rooms, review rooms and indoor theaters.

In 1982, the standard was modified to include a different EQ characteristic based on room size and reverberation time, taking into account some of the research that Allen and the Dolby engineering team had originally conducted 11 years ago at Elstree Studios. This standards stuff takes time...

At Last, Some Improvements

Largely as a result of the early work related to the improvement of theater sound reproduction standards, Dolby was able to showcase some material that showed off the capabilities of an improved cinema sound system. The first of these was a demo film titled *A Quiet Revolution*, which Dolby produced in 1972 as a presentation piece aimed primarily at film industry execs. This was one of the first films released which had a Dolby A encoded mono optical track, and was intended to be played back on systems which had a modified optical sound reproducer with a narrower slit that would extend the HF response. The first Dolby encoded feature film, the movie *Callan*, premiered at the Cannes Film Festival in 1974. Although the film received only a limited release, it did serve as a good demo for EMI and Dolby in their efforts to improve the quality of standard mono optical soundtracks. However, these efforts would soon be overshadowed by the next development of optical sound recording systems.

Next installment: Dolby Stereo Optical Sound



Star Wars in Dolby stereo!

Photo from *International Sound Technician* April 1953



Stereophonic sound crew shooting *The Robe*, showing Carl Daniels, Danny Daniels, and Roy Potts operating the three booms with Barney Freericks at the mixing panel and J.K. "Rocky" Nelson, stage man, standing behind him.

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