FOR YOUR CONSIDERATION IN ALL CATEGORIES INCLUDING

BEST PICTURE

BEST DIRECTOR
JEFF NICHOLS

BEST SOUND EDITING
WILL FILES, Supervising Sound Editor

BEST SOUND MIXING
PUD CUSACK, Sound Mixer
WILL FILES, Re-recording Mixer
BRANDON PROCTOR, Re-recording Mixer

“★★★★★.”
Ann Hornaday, THE WASHINGTON POST

“A landmark film.”
THE NEW YORKER

“An absorbing piece of American cinema.”
Paul Heath, THE HOLLYWOOD NEWS

“Jeff Nichols has given us a quietly devastating film that resonates for the here and now and marches to the cadences of history and the heart.”
Peter Travers, ROLLING STONE

L O V I N G

Written and Directed by JEFF NICHOLS

For more on this film, go to www.FocusFeaturesGuilds2016.com
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Cover: CAS Events
Dear Friends,

We’ve been very busy as the season is upon us. The Mix “Sound for Film” event, co-sponsored by CAS and MPSE, was a roaring success with great attendance and widely praised content. Of special note was the SRO CAS Panel: Workflow for Musicals in Film and Television Production. Noted production mixer Glen Trew moderated a terrific panel of production and post production notables and explored, in depth, a very fluid and essential aspect of Cinema Audio. We’ve received many requests for a part two, ASAP. Another very popular CAS contribution to the Mix magazine event was the Production Sound Pavilion, held on the legendary Barbra Streisand Scoring Stage at Sony Studios. The walking tour of many production sound carts demonstrating SOA approach by working practitioners brought hoards of curious post production folks closer to their production comrades’ tools and techniques.

Right on the heels of the “Sound for Film” event, CAS and MPSE partnered again for the 8th Annual Golf and Poker Tournament—also very well-attended. Brunch, fun, and frolic were had on the links and at the card tables. This event concluded with a lovely dinner, honoring the retiring Executive Director of the Motion Picture Editors Guild, Ron Kutak.

We’re very excited as we prepare for our next awards show, with John Pritchett named as our Career Achievement Award recipient and Jon Favreau to receive the Filmmaker Award. We’ve added two new categories to this year’s event as well: Motion Picture – Documentary and Outstanding Product awards. These reflect the popular requests from our membership and, we believe, areas well worthy of recognition.

On the horizon, expansion of our classic sound film screening series, educational panels, and facility tours, so please stay tuned …

Warm regards,

Mark Ulano CAS
President
FOR YOUR CONSIDERATION

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“UNIQUE AND UNFORGETTABLE.”
Rolling Stone
Peter Travers

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“UNIQUE AND UNFORGETTABLE.”
The Washington Post
Ann Hornaday

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BEST SOUND MIXING
Re-Recording Mixers
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Sound Mixer
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Frank Eulner

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Robert Legato, ASC
Andrew R. Jones
Adam Valdez
Dan Lemmon

“A VISUAL WONDERMENT OF COLOR, TEXTURE, MOVEMENT AND SPECTACULAR ANIMAL LIFE.”
Since our last installment, the sound community has been busy with a number of informative events—as you’ll see in the contents of this issue. The third annual Mix magazine “Sound for Film” event, cosponsored by the CAS and MPSE, was held at Sony Studios in September. David Bondelevitch CAS MPSE, Shaun Cunningham CAS, and Karol Urban CAS MPSE provide a recap of some of the events. Former Quarterly co-editor and current Treasurer, Peter Damski CAS, reports in from the sound design-focused Cinesonika Film Festival while Matt Foglia CAS discusses some of the interesting panels and products he saw at the first AES “Audio for Virtual and Augmented Reality” conference held in LA last month. Karol Urban continues with coverage of the CAS member screening and discussion of the CAS Award-winning film, The Fugitive, which took place in August while David Bondelevitch recaps this year’s MPSE/CAS Golf and Poker Tournament.

In addition to being your eyes on the scene, Shaun Cunningham provides an interview with re-recording mixer Chris Jacobson CAS. Ed Greene CAS discusses RF spectrum awareness while Devendra Cleary CAS shares his thoughts on antennas and concerns about the future use of the spectrum. G. John Garrett CAS picks up from last issue’s discussion of the book Auditory Neuroscience and covers the anatomy of the ear. Additionally, we are proud to announce this year’s CAS Filmmaker Award recipient, Jon Favreau. On the topic of awards, we’re also excited to announce a new Technical category for Outstanding Products in the production and post production fields. Finally, you can read about the happenings of your fellow members in the “Been There Done That” and “The Lighter Side” sections.

A special request for our international members: We’d love for you to share your experiences and/or expertise with us through this publication. As you know, much of our coverage is centered around North America—but we have members all over the world! If you have an idea for an article or column, please reach out to us!

The CAS Quarterly is produced as a service to our members on a voluntary basis. If you are a member and would like to contribute an article—whether on the production or post production side—please let us know. Additionally, we greatly appreciate, and want, your feedback and suggestions—so send them in! Email us at CASQuarterly@CinemaAudioSociety.org. Finally, don’t forget that our sponsors are professionals like you who understand the business and needs of this crazy industry. We encourage your commitment to them.

Matt Foglia CAS  
Karol Urban CAS MPSE
FOR YOUR CONSIDERATION

LIVE BY NIGHT
“SULLY’ IS AN ABSOLUTE TRIUMPH.”
— Richard Roeper, SUN-TIMES

“This film makes us feel the G-forces because of something we don’t even notice. The whining engines, the bumps and thuds of retracting wheels, grinding noises outside the plane, place us into an audio environment so authentic that when those birds hit the turbines, we feel it.”
— Dann Gire

FOR YOUR CONSIDERATION

SULLY

IN ALL CATEGORIES INCLUDING

BEST PICTURE
BEST SOUND MIXING
SOUND MIXER
JOSÉ ANTONIO GARCÍA
RE-RECORDING MIXERS
JOHN REITZ • TOM OZANICH

BEST SOUND EDITING
SUPERVISING SOUND EDITORS
ALAN ROBERT MURRAY • BUB ASMAN

WWW.WARNERBROS.COM
Exploring the book: Auditory Neuroscience: Making Sense of Sound

Part 2: Anatomy

by G. John Garrett CAS

For this installment of my scattered book report on the very dense and rich Auditory Neuroscience (Schnupp, Nelken & King, MIT Press), I’ll be moving from the phenomenon of sound production—represented as masses and springs, resonances and creating air pressure differential—to the mechanism for perceiving these minute pressure changes as sound, the anatomy, and function of the ear. Now, most of this will be familiar to some readers, and some of it will be familiar to most, but there are surprises along the way that will help you understand acoustics, sound generation, and your perception of received sounds.

The pinna is the outermost part of the ear, the flap of cartilage and skin that we commonly point to when we talk about ears. The book doesn’t even mention this basic structure, but we all know it helps to direct sound into the ear canal and add a front-facing, more-or-less, unidirectional pattern to our hearing.

Next is the ear canal itself. You might be surprised to learn it’s about an inch long, contains a bend (to prevent you from poking a stick directly into your eardrum), and the wax produced in the ear canal helps protect the skin of the ear canal and is somewhat antifungal and antibacterial. The ear canal is a tuned port that amplifies sound in the 2kHz-4kHz range. These are, coincidentally, critical frequency bands for hearing human speech. This is probably why we hear these frequencies best.

Our soundwave finally comes to the tympanum, or eardrum, which is a thin membrane that acts just like a drumhead—or another mass-and-spring system if you want to reduce it to physics. This is the outer boundary of the middle ear.

Attached to the eardrum is the first of three tiny bones which mechanically transfer the motion of the eardrum to the cochlea, or the inner ear, where all the real action takes place. “You might wonder, if the sound has already traveled a potentially quite large distance from a sound source to the eardrum, why would it need a chain of little bones to be transmitted to the cochlea? Could it not travel the last centimeter traveling through the air-filled space of the middle ear just as it has covered all the previous distance?” (page 51). I’m glad you asked!

The three bones, the malleus, incus, and stapes, physically connect the eardrum to the oval window in the cochlea. Okay, sure. Well, it turns out that the cochlea is filled with lymph-like fluid, which is much denser than air, so it has a different impedance than air. Those three little bones are a mechanical impedance-matching transformer, ensuring maximum power transfer from one medium to the other. It is also the mass of these tiny
bones that limits our upper frequency perception to a great extent. That’s pretty amazing, isn’t it? It gets better. There is a tiny muscle attached between the stapes and the middle ear cavity called the stapedius, which contracts with loud noises to protect your hearing from damage. That’s right, after the input transformer, there’s a slow-attack limiter in the signal chain. It won’t protect you from high-level impulse noises, but it does help with continuous noise levels, and does begin working when you hear an impulse noise. I suspect this muscle figures into ear-fatigue issues, and may partly explain why DJs turn up the music as the night goes on. Also, not in the book, but I have been told that the arrangement of the bones is such that the ear is not very sensitive to vibrations from your jaw, otherwise, you could break your eardrums from chewing.

The oval window is the boundary of the inner ear, which is comprised of the cochlea, basilar membrane, and the structures that transduce the pressure changes into voltages for neural transmission and processing.

The cochlea is a snail-shaped structure, filled with fluid, and encased in the hardest bone in your body. There is a membrane bisecting this closed column of fluid, the basilar membrane. It extends from the middle ear through nearly the entire length of the cochlea and carries the tiny hair cells and organ of corti along its surface. There are two “windows” in the cochlea: the oval window and the round window. When the stapes pushes against the oval window, there is a pressure increase pretty much instantaneously throughout the cochlea. This increase in pressure makes the round window bulge outward as the oval window moves inward. It’s kind of like a passive radiator in a speaker enclosure. How this pressure wave gets to the round window is the fun part. It takes the path of least resistance. The basilar membrane is narrow and stiff at the basal end, and wide and thin at the far end. The shorter wavelengths pass through the membrane closer to the basal end, and longer waves pass through at the distal end. So there’s an increasing gradient of fluid in the column, and a decreasing gradient of stiffness in the membrane. It’s not exactly linear, but you can think of each frequency exciting a specific part of the basilar membrane and the hair cells specific to that region. It’s really a large set of mechanical filters that respond to pitch in a particular way, almost like a Fourier Transform, but not quite. These filters are the best compromise between frequency and time-resolution requirements to deliver maximum information to the brain. Here’s a link to check out: AuditoryNeuroscience.com/topics/basilar-membrane-motion-0-frequency-modulated-tone

There’s another membrane called the reissner’s membrane in there. It doesn’t carry any significant acoustical properties but it forms an ionic barrier between the fluid in scala media and scala vestibuli. The tectorial membrane appears to be connected to the outer hair cells, which move in response to changing pressure, wiggling the hair cells. The inner hair cells are thought to wave along in the fluid, not connected to the tectorial membrane. Along one side, you will see a structure called the stria vascularis. This brings potassium ions into the scala media from the bloodstream. The fluid in the scala media becomes positively charged to about 80 mV. When the hair cells get deflected, potassium channels open up and current flows. The hair cells also have different lengths (15um-17um), and are connected by tiny protein motors called “tip links” so that they work together in being deflected or not.

So each cycle of vibration in the basilar membrane causes a cycle of varying tension in the tip links. Since more tension opens more K+ channels—and because the K+ current is proportional to the number of open channels—the mechanical vibrations are translated into corresponding patterns of electrical energy. This is how our ears work as transducers and signal generators for our brains to make sense of the world. What an incredibly impressive system!
“AN EXPLOSIVE TALE OF LOVE, VIOLENCE AND REVENGE.”
Owen Gleiberman, VARIETY

“A SUPREMELY CLEVER AND PULSATINGLY GRIPPING EMOTIONAL THRILLER.”
Brian Viner, DAILY MAIL

“ONE OF THE MOST ELECTRIFYING, FASCINATING, SENSATIONAL FILMS THIS YEAR!”
Dennis Dermody, PAPER

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BEST SOUND EDITING
LON BENDER, Sound Designer and Supervisor
KRIS FENSKE, Sound Designer

BEST SOUND MIXING
SCOTT HARBER, CAS, Production Sound Mixer
PAUL COTTERELL, Re-recording Mixer
GILBERT LAKE, Re-recording Mixer

BEST DIRECTOR
TOM FORD

NOCTURNAL ANIMALS

Screenplay by TOM FORD
Directed by TOM FORD

For more on this film, go to www.FocusFeaturesGuilds2016.com
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IN ALL CATEGORIES INCLUDING

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BEST SOUND MIXING

SUPERVISING SOUND EDITOR & SOUND DESIGNER
WILL FILES

PRODUCTION MIXER
RE-RECORDING MIXER
WHIT NORRIS
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WILL FILES

PASSENGERS

www.SonyPicturesAwards.com

One of the year’s best films of any kind, really – Kubo is a truly unforgettable journey. Dario Marianelli’s lush and lively score sells the spectacle. Made by a team of gifted visionaries, it’s staggeringly beautiful and immensely true. Grade: A.”

DAVID EHRLLICH, INDIEWIRE

KUBO AND THE TWO STRINGS comes “Laika’s best film yet.”

FROM THE MAKERS OF

BEST ANIMATED FEATURE
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TIM CHAU, Supervising Sound Editor/Sound Designer
THOMAS O’NEIL YOUNKMAN, Sound Effects Editor

BEST SOUND MIXING
TIM CHAU, Re-recording Mixer
TIM LEBLANC, Re-recording Mixer

FOR YOUR CONSIDERATION IN ALL CATEGORIES INCLUDING

For more on this extraordinary film, go to www.FocusFeaturesGuilds2016.com
What led you to re-recording mixing?

I started out as a musician when I was younger, growing up in Northern California, playing guitar, both rock and classical, and eventually, got into recording myself on four-track cassette. I moved to Southern California in 1995 to go to music school for a certificate in guitar performance, which is a one-year program. Toward the end, I started an internship at a music studio in Hollywood, and I thought that, while I’m trying to make it as a musician, I could supplement my income engineering music. It was a tough gig and I wasn’t sure it was right for me, but the studio started getting involved in post production and I learned as they learned and became one of the main editors at the studio. I had my hand in editing dialogue, Foley, sound effects, ADR, and I even did a little bit of mixing.

After about a year or two doing that, one of our main clients hired me away because they were starting their own in-house post production department and the post supervisor wanted me to come work for them. So I started there as an editor/mixer, jack-of-all-trades. They offered me, essentially, their supervising sound editor position, but I didn’t feel like I was ready at the time so I passed and then regretted not going for it later down the road. I felt like it was one of those times where I should have bit off more than I could chew and grown into it. But I still ended up supervising and mixing shows for them, and I would alternate shows with the lead supervisor. Most of the projects we were working on were direct-to-video horror features that were down-and-dirty.

After about a year, they laid off the entire department, but the post supervisor was moving all of his equipment into his apartment to work from home and the apartment next to him opened up. He suggested that I move in next door and put in a Pro Tools rig, so that’s what I did. I ended up working out of the apartment for a year or two on basically the same projects for the same company. That’s where I did my first 5.1 mix—in the living room of my apartment. Pro Tools at the time wouldn’t even let you mix in 5.1, there was a third-party plugin that let you do it. Everything I had done before was either stereo or LCRS so it was a great learning experience doing 5.1. I eventually outgrew what I was doing there so I moved on. This was around the time that shooting on DV started getting really popular and the budgets started dropping and sound wasn’t as important to them anymore, so I looked for work elsewhere. After that, I went to work for a DVD authoring house that had a client that did a ton of Japanese anime titles. So I recorded most of the ADR and would mix them with the original M&E. I did loads of them for nearly a year. I did other stuff as well, like DVD commentaries and any other sound work that was needed.
Were you drawn more to FX editing and mixing when you first started in post?
Yes, I was. Especially doing the horror work. I really enjoyed editing sound effects and designing the sounds and mixing them as well; making the Foley sit with production. Around that time, I met dialogue re-recording mixer Marti D. Humphrey CAS. I had met him at a Pro Tools event at a dealer, where he won a drawing and, when I heard his name, I recognized it from the boards like the Digi User Conference and Gearslutz. We had chatted through the forums a few times before, so I went up and talked to him and he recognized me as well. I had mentioned that I just bought my own Pro Tools HD 3 system with plugins, interfaces and the whole nine yards, and he was just setting up The Dub Stage and needed another mixer and system. I think he saw something in me —that I knew what I was doing technically and had some experience in post sound and mixing in Pro Tools. So we started working together a little bit. I helped him set up his system at The Dub Stage and he had just bought two Control 24’s and I brought my system in and we had a two-man operation going. That was in 2004. The first project we did was the director’s cut of The Grudge. Marti had just finished mixing the final at another facility and they were coming back to do the director’s cut for the DVD and international theatrical release. So that was my first time working with him and Paul Ottosson as well.

How did you learn to work on larger films? Did you get a lot of training or did you just dive in and learn as you went?
Initially, when I was learning at the first studio I worked at, we had a guy who was a dialogue specialist who I learned a lot from, and we also had a music supervisor in the facility who was working on big features at the time. He knew a lot about the ins and outs of working on larger projects. I was learning some great stuff in the beginning and a lot of it was also figuring out on my own on smaller projects. Then when I worked on bigger stuff, I started learning more, like when an editorial house would bring their shows for us to mix and split out in different groups of pre-dubs. Working as a mixer, you see a wide range of things, big and small, and you see what works and what doesn’t.

When Marti and I first started out at The Dub Stage, we were working on small projects and the first bigger project we did was The Grudge. That was the first theatrical feature film I worked on and the first time I had worked with Dolby to printmaster.

What were some of your favorite projects?
One of the first big breaks I got was working on The Strangers with Scott Hecker, who was the supervising sound editor. We had enough experience at the time that we knew what we were doing and it was one of those projects that was fun to work on and it went smoothly. It was a pleasure to work with Scott, and I got really good material to mix. Scott and I are friends to this day.

We’ve also done some good TV shows, like Everybody Hates Chris, Alphas, Girlfriends’ Guide to Divorce, and Allegiance.

Mixing Oz the Great and Powerful at Sony was also a highlight. We mixed it in the Kim Novak Theater, which is a beautiful traditional stage. We brought in two Icon D-Control 64 fader consoles that were situated on top of the Harrison, with four Pro Tools HDX systems consisting of dialogue, music, FX/sound design, and BG/Foley with a total track count of over 1,200. No committed pre-dubs, all kept virtual to the very end when we did the final printmaster. Working with sound supervisor Jussi Tegelman is always a pleasure as well.

Marti pre-dubbed the dialogue at The Dub Stage and I did the FX pre-dubs at Sony in the Novak Theater before we did the final mix in the Novak. After that, we did some versioning at The Dub Stage, including the Auro-3D version, home theater mixes, stereo mixes, and to help out on Independence Day: Resurgence and I did some temp mixing and sound effects editing on that film.

You’ve worked on quite a few films with Paul since then.
Yes, he’s been pretty good to me. I helped out on The Hurt Locker, pre-dubbing sound FX for about a week. I did sound effects editorial and mixed Drag Me to Hell, a few weeks of sound effects editing on Spider-Man 3 and also did a lot of sound design and sound FX editing for Battle: Los Angeles, as well. I think Paul likes that I pre-mix as I cut, and he likes that it’s in the ballpark and ready to be presented when I’m done. Recently, he called me...
the airline mix, etc. We pre-dubbed for about a month and then did the final mix for about a month as well. It didn’t seem like enough time, but we got it done. The show was just so busy, with lots of visual effects being updated continuously. Mixing with director Sam Raimi and Oscar-winning picture editor Bob Murawski was fun. They are just the greatest people to work with.

**You’ve had the opportunity to work with Sam Raimi quite a bit.**
Yes, it started on *Drag Me to Hell*, and we have had the opportunity to work with him at The Dub Stage a lot since then, whether he’s directing or producing. We mixed *Poltergeist* (2015), *The Possession, Oz the Great and Powerful*, and the TV pilot of *Ash vs Evil Dead* for Starz Network last year.

**How do you approach your mixes?**
I like to start with a pre-dubbed dialogue track to mix against if possible. I really prefer that to a scratch dialog guide out of the Avid, because the levels can be all over the place. I start with getting a general level and panning out my backgrounds and will leave more intricate details for the final. Then, I like to move on to Foley, before going into hard effects and sound design, because I want to focus on making the Foley blend into the production so it sounds like the same track basically. With Foley, you get a wide range of stuff. Sometimes it’s awesome and sometimes not, but it always needs a little bit of something. I actually have more inserts on my Foley tracks than anything else. I like to start with an expander to pull out some of the noise and then a transient designer to try to reduce some of the attack, mostly on footsteps but not so much on props. I feel that it lets more of the body of the sound come through while keeping the transients under control. I’ll even use a de-esser on steps to control the scuffs—I find the scuffs seem to cut through everything else. I also use EQ and compression on every track in my session and have multiple reverbs for every food
group (BG, FX, SD, Foley). Foley is tough because it’s always different and there are so many factors that go into making a great Foley recording, including room size, mic, the Foley artist, even the editorial—so much that it’s a whole other discussion.

After I do a Foley pass, I go for the sound effects and then finally, the sound design as the sweetener on top. This can vary depending how the FX are delivered and what kind of demands there are for the project. Sometimes you get stuff that is well-balanced and pre-panned and you don’t need to do as much to it to for it to play great.

You and Marti were one of the first adopters of immersive sound. How did you decide that Auro was the format you wanted to work in?

We were actually the first in Los Angeles, second in the US behind Skywalker Sound, and third in the world to install Auro-3D; the first obviously being in Belgium where Wilfried Van Baelen designed the format and had it installed at Galaxy Studios. We were looking into immersive formats, one of them being imm sound that eventually was acquired by Dolby and became Atmos. Auro seemed to be the leader at the time for our workflow. They were cutting edge and moving things forward logically from the standard 5.1 DCP format. Their tools made a lot of sense and worked well with Pro Tools in comparison to some of the other formats that required external hardware to make it work and were much more complicated at the time. Marti and I really liked a lot of things about Auro, starting with Wilfried, he’s just brilliant and a really great guy, and I consider him a friend. We first heard Auro when we went to a demo at one of the first theater installations in Los Angeles. So Marti and I approached Wilfried and expressed our interest in working in the format and helping him to create some good demo material. We’ve also done some testing and mixing in DTS-X and AuroMax, which is Auro’s object-based format (13.1 + Objects).

How did you learn to mix in Auro?

A lot of it was just hands-on and playing with it and experimentation—but it’s a pretty logical next step up from 5.1 with the additional five-channel height layer and the Voice of God channel above you. It makes sense to put birds up in the height layer or wind in trees or stuff flying over your head and thunder; things like that. It doesn’t always work to keep BG elements 100 percent in either the top or bottom layer, sometimes it works really well to spread sounds between the layers. I didn’t feel it was that difficult to learn, it just all made sense and I got a lot of great input from Wilfried on how to exaggerate the use of the format for better effect, which was great. I feel that it’s an extension of the storytelling process and increases the emotional impact of the movie, especially when you can pull the music and other elements into the room and wrap them around you.

With having six screen channels, how are you using that added space for FX mixing?

It all depends. For Foley and standard hard effects like doors, I keep them in the main center channel, which is the lower one. But for something like explosions, I will use all six channels and really open up the clarity and the impact—even for gunshots, if it’s appropriate with the visuals.

One of the first projects we did in Auro-3D was a huge Indian film, *Vishwaroopam*, directed by and starring Kamal Haasan that had tons of action and a war scene in Afghanistan. We had helicopters bombing and shooting going to the height channels and the Voice of God and people on the ground going to the lower level and people on rooftops, where I was splitting them between the two height layers and they were all being panned around. It is amazing and really fun to get that clarity and direction, so much more than you can in 5.1. Wilfried was in town when we initially pitched the idea of doing this film in Auro to the director, and we asked them if they could throw together a trailer for us to mix and experiment with. They were able to do it and prep the sound for it within days and we were able to get our feet wet with the format and provide feedback for the Auro toolset.

I was beta testing for Auro by the time we did our second project in Auro, which was a remix of *Rise of the Guardians* (2012). We had stems and specific elements split out from supervising sound editor Richard King that were good to have for panning overhead. I was giving feedback daily to Auro and they were sending me a new build of the plugin.
“A delightfully well-orchestrated parable about trust and tolerance versus panic and prejudice. An encouragingly upbeat celebration of love and diversity in times of hate and uncertainty.”

THE OBSERVER / Mark Kermode
FOR YOUR CAS AWARDS CONSIDERATION

FROM VISIONARY FILMMAKER AVA DUVERNAY

QUEEN SUGAR
EXECUTIVE PRODUCER OPRAH WINFREY

TELEVISION SERIES – 1 HOUR
EPISODE 101 “FIRST THINGS FIRST”

PRODUCTION SOUND MIXER
JONATHAN PARHAM

RE-RECORDING MIXER
JEFFREY PERKINS
ERIC JUSTEN

BEAUTIFULLY MOVING
USA TODAY

EMOTIONALLY RICH
ESPSENCE

POWERFUL
WASHINGTON POST

OWN
every morning. They really listened to my feedback and implemented a lot of the changes I requested. We only had five days to do the mix, and it was possible because of Auro’s support. We were all thrilled with the way it came out and I think it helped to convince DreamWorks to adopt the format for many more of their animated releases since. We also did an Auro-3D remix of *Ender's Game*, which was an amazing project as well.

**What do you do with your time away from the industry to relax and what do you enjoy doing aside from mixing?**

I took a cooking class last year to try to learn to cook for my family and cook healthier, but I don’t think I could be a professional chef or anything like that. I don’t have enough time to get back to playing music full time again (maybe someday!), but I do enjoy doing field recording for ambience and unique sounds. If I’m working on a project and I need something specific, I’ll just go out and grab it; either with my main recording rig or one of the many portable recorders I own.

I’m married and have two kids, my daughter Kaia is 9 and my son Koa is 12, so I spend most of my time away from work with my family. My son and I play some video games when we have a chance. Our favorite game is *Halo*, so we will play co-op missions together or play multi-player online. He follows a lot of the pro players so we went to a pro league championship in Santa Ana a few weeks ago. I used to play more myself when I had the time and I was really into it, but it cut into my sleep, so I had to pull back from playing quite a bit.

I also like to make my own hair and lotion products like shampoo and conditioner, etc. I don’t get as much time for it now, but a few years ago, I was really into it. I’ve got long hair so I really need good products. Some of it gets really complicated with chemicals and formulas, but making soap products is fairly easy. I make my own lip balm and various other products and I really focus on keeping it as natural and organic as possible. I thought about trying to make enough to sell, but that gets much more complicated. I also make a lot of the cleaning products we use around the house, again trying to keep it natural and stay away from as many of the toxic chemicals as we can. We’ve even made our own beef jerky and other food products. Right now, we also have seven chickens and three are laying eggs almost every day. We even try to raise quail, but where we live, near the Los Angeles foothills area, we have a lot of predators so it can be difficult to keep them. I think if I could live somewhat off the grid on a ranch, I would do that, but I would still have to have internet!

Currently, I’m working freelance on various projects around town, trying not to get too busy so that I can spend time with the family. •
Multi-hyphenate Jon Favreau will receive the Cinema Audio Society Filmmaker Award at the 53rd Annual CAS Awards on February 18, 2017, at the Omni Los Angeles Hotel at California Plaza in downtown Los Angeles.

“Having worked with Jon on multiple projects, including the iconic Iron Man films, I am particularly pleased to announce the selection of Jon Favreau as the recipient of the CAS Filmmaker Award,” said CAS President Mark Ulano. “Jon has been a steadfast presence humanizing his storytelling with intelligence and skill. His light touch continues to produce engaging classics, from Elf to The Jungle Book. As a director, actor, producer, his ubiquitous creativity continues to entertain millions and makes him a wonderful choice for the CAS Filmmaker Award.”

Jon Favreau began his career in the industry as an actor in the inspiring sports film Rudy. He went on to establish himself as a writer with the acclaimed hipster comedy Swingers. Since then, he has continued to work on both sides of the camera as an actor, writer, director, and producer.

Most recently, Favreau directed and produced Disney’s live-action adaptation of Rudyard Kipling’s epic adventure The Jungle Book, a film that has received universal acclaim and is currently the fourth-highest-grossing film of the year. Calling it “a sweet and scary triumph of modern moviemaking,” the Los Angeles Times wrote, “Touching all the bases … is second nature to Favreau’s film and it’s impressive to see how effortless he makes it seem.”

An integral part of the formation and the expansion of the Marvel Universe, Favreau had his director hat firmly planted when making the blockbuster hits Iron Man and Iron Man 2, which grossed a combined $1.2 billion at the worldwide box office. He also served as executive producer on Marvel’s The Avengers and Avengers: Age of Ultron, which grossed a combined $2.9 billion worldwide, becoming the fifth- and seventh-highest-grossing films of all time.

In a change of pace from the big blockbuster, 2014 saw Favreau writing, directing, producing, and starring in the indie hit Chef, a well-received comedy that also starred Sofia Vergara, Scarlett Johansson, and Robert Downey Jr.

His directing credits also include: Cowboys & Aliens, starring Harrison Ford and Daniel Craig; Zathura: A Space Adventure, starring Tim Robbins and holiday smash hit Elf, starring Will Ferrell. He made his feature film directorial debut with Made, a script he wrote and starred in, opposite Vince Vaughn and Sean Combs.


Favreau’s television credits include a recurring role on Friends and a special appearance on HBO’s The Sopranos,

DIRECTOR Jon Favreau to be honored
playing himself. Favreau also added the title of show runner to his multi-hyphenate list of credits as the creator, producer, and host of the critically acclaimed and Emmy®-nominated IFC series Dinner for Five. He also executive produced the TV series Revolution. Presently, Favreau is an executive producer on the TV series The Shannara Chronicles, which was recently renewed for a second season.

Favreau will be the 12th CAS Filmmaker honoree. Past honorees have been: Jay Roach, Richard Linklater, Edward Zwick, Jonathan Demme, Rob Marshall, Taylor Hackford, Henry Selick, Paul Mazursky, Bill Condon, Gil Cates, and Quentin Tarantino.

Also being honored that evening with the CAS Career Achievement Award is previously announced recipient John Pritchett CAS. During the awards ceremony, the CAS will also present the CAS Student Recognition Award to one of five student finalists.

The 53rd CAS Awards will honor Outstanding Achievements in Sound Mixing in seven categories: Motion Pictures – Live Action, Motion Pictures – Animated, Motion Pictures – Documentary, Television Movies and Mini-Series, Television Series – One Hour, Television Series – Half-Hour, and Television Non-Fiction, Variety, Music Series or Specials.*
The Cinema Audio Society announced recently that, beginning with the 53rd CAS Awards, the organization will honor products which enhance the daily lives of mixers by presenting Outstanding Product Awards for both Production and Post Production.

“As Chair of the Awards Committee for the CAS, I am very pleased that we have augmented the Technical Achievement Awards that have been awarded in the past into the Outstanding Product Awards, as they more succinctly express the honor and the intention of these annual awards,” said CAS Board member Bob Bronow. “We couldn’t do what we do without so many amazing products that allow us to do our best work. It’s great to see them getting much-deserved recognition.”

These awards will honor products or workflows that have become very useful in the workplace, and are becoming established as essential tools for the mixing communities (production and post production).

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The Outstanding Product Awards will be voted on by the entire CAS membership and are open to products, updates, and workflows that have been released within the previous two calendar years.
“★★★★★”

the guardian

“★★★★★”

TimeOut

“THE BATTLE SCENES ARE BREATHLESSLY KINETIC.”

WRAP

“BLUNT AND EFFECTIVE, A PICTURE CANNILY CRAFTED FOR MAXIMUM EFFECT.”

San Francisco Chronicle

HACKSAW RIDGE

BEST SOUND MIXING

RE-RECORDING MIXER

KEVIN O’CONNELL

RE-RECORDING MIXER

ANDY WRIGHT

RE-RECORDING MIXER

ROBERT MACKENZIE

BEST SOUND EDITING

ROBERT MACKENZIE
Sound for Film & Television:

The Merging of Art, Technique, and Tools

by Phil Palmer CAS, David Bondelevitch CAS MPSE, Shaun Cunningham CAS, and Karol Urban CAS MPSE

The “Sound for Film” event was held at Sony Studios in Culver City, CA. Cinema Audio Society and Motion Picture Sound Editors co-sponsored this event along with *Mix* magazine for the third year. Attracting over 500 production and post production professionals, it is an all-day event celebrating the art and science of our craft and exploring the newest techniques, workflows, and technology. There were sponsored programs, vendor tables, expert panels, master classes, a parade of sound carts, and a sound reel showcase.

Check out some of the highlights below:

**The Keynote Delivered**

by Gary Bourgeois CAS

In celebrating year three of the *Mix* magazine “Sound for Film” event at Sony Studios (co-sponsored by *Mix*, the Cinema Audio Society, and the Motion Picture Sound Editors), re-recording mixer Gary Bourgeois was selected for the keynote. Bourgeois, a former president of the CAS, worked at Todd-AO and Sony before becoming an independent mixer.

After welcoming everyone, Bourgeois discussed the brave new world of mixing in many types of scenarios. As an example, he used the challenge he encountered on a series he mixed for Amazon, knowing that people could be watching it on a good home system, a laptop with built-in speakers or even, simply, on earbuds.
Discussing the beautiful studios at Sony, Bourgeois said that “One might look at such an impressive facility and think that it has been designed to cater to the clientele in every way possible, and it has; but more importantly, it is a platform for an equal balance of the technical and the artistic to make the talent feel that they are conducive to stretching the limits of storytelling. It is that storytelling that the content providers have as a product. We are here to support the writers and directors in their imaginary world, both real and unreal.”

Bourgeois went on to discuss the importance of mixers as creators in the process. “The originators of the material have the opportunity to work with us directly and are now more aware of what we bring to the table as artists. This has enabled them to be able to incorporate a new understanding of what new techniques are available in audio. We gain greater respect as artists in this way, and must continuously build that relationship by exposing them to the newest and best ways to be creative in audio.”

Bourgeois discussed his travels and how they have impacted the way he listens. Some cultures communicate using tools that Americans do not use. “I have had the great opportunity to mix in numerous different countries and with diverse cultures. My experiences abroad have opened my eyes to how many different ways there are to connect with audiences and how differently they see things. It has enhanced my understanding of how to be expressive as an artist with sound. It is great fun when both parties [on] the stage learn from each other. That is the very best way to have the client realize that we are artists with sound.” For example, decisions made in spotting sessions, such as use of specific Atmos channels, can be confirmed on the dub stage.

Bourgeois pointed out that without pre-dubs, scoring cannot happen as late in the process as it once did. For this reason, he encourages meetings early on in the process to decide workflow and scheduling. “There should no longer be an assumption as to the structure of post, given the differing methods of how people use the newest technologies.”

Sony has installed a large Avid S6 in the Cary Grant Theatre. Bourgeois has extensive experience on the console. Most re-recording mixers are freelance now, making the stage’s engineer the mixer’s best friend. “I must say that having my dongle and my iLok with me at all times hastens the setup time and process and guarantees my familiarity with my tools at hand.”

Bourgeois finished with a story about a non-industry friend who had asked what a re-recording mixer does, and after explaining his work to her, she now talks with him about sound design on a regular basis. This anecdote nicely sums up Bourgeois’s approach to inclusive discussion from the very beginning of the filmmaking process. Educating the filmmakers about our roles in post production can only benefit everyone in the experience—and will make a better product for the consumer as well.

“Each project has its own workflow. No longer is there a set approach to the structure. Not only do editors and sound designers work differently, but so do the mixers. There is a wider diversity in workflows now more than ever. Some mixers still do pre-dubs, some do not pre-dub at all.” —Gary Bourgeois CAS
CONSIDER THIS

BEST SOUND MIXING
RE-RECORDING MIXER
Andy Nelson
RE-RECORDING MIXER
Ai-Ling Lee
PRODUCTION SOUND MIXER
Steve A. Morrow, CAS

BEST SOUND EDITING
SOUND DESIGNER/
SUPERVISING SOUND EDITOR
Ai-Ling Lee
SUPERVISING SOUND EDITOR
Mildred Iatrou Morgan

“★★★★★
Gorgeous and magnificent. The film has the sheer power to make audiences laugh, weep and feel as if they can float on air. Hollywood doesn’t make these kinds of movies anymore.”
MARA REINSTEIN, US WEEKLY

LA LA LAND

LionsgateAwards.com
Sound Inspiration Within the Storytelling Process
Presented by MPSE

This panel was moderated by Carolyn Giardino of The Hollywood Reporter and the panelists included Will Files (Star Wars: The Force Awakens, Dawn of the Planet of the Apes, Star Trek Into Darkness), Mark P. Stoeckinger (Gladiator, Star Trek, Unstoppable), Ben L. Cook (American History X, Black Sails, Deadwood), Paula Fairfield (Game of Thrones, Lost, Sin City), Harry Cohen (Django Unchained, Inglorious Bastards, Deepwater Horizon), and Paul Menichini (World of Warcraft, Starcraft).

Check out some of the highlights from the discussion below:

How do you draw inspiration?

Will: “A lot of my inspiration comes from the director and their vision. I always try to channel the director’s aesthetic through my own work. I often ask how does he want the audience to feel about something. Often, that’s one of the best things I can know going in: ‘Should they be scared of this monster? Should they be in awe? Should they feel pity?’ Sometimes it’s not what you would expect.”

Will recently finished a film called Loving, a civil rights drama set in the ’50s and ’60s in the South (directed by Jeff Nichols). “I was able to draw on my own experiences living in the South. You’re trying to create feeling through sound of what it’s like to be there. Does it feel hot? Does it feel damp? Does it feel oppressive?” When asked how he approaches a project in an unfamiliar environment, Will responded, “YouTube. It’s a really great resource. It was totally invaluable for us to have YouTube available when researching Planet of the Apes. What do baby chimps sound like? What do angry orangutans sound like? Twenty years ago, these would have taken so much time to investigate. We even went so far as to track down some of the people who had made these videos and license sounds from them to use in the movies.”

Mark: “My process is to watch it the first time as a movie, ‘What kind of story is it? How do I react to it?’ Then, what kind of sound might it need to increase that experience? It also helps define some of the questions to ask like how a director sees a scene play or how the audience is supposed to feel.” Mark discussed his approach to the film Prometheus, which takes place in the same universe as the Alien film series. “The research was understanding what the current film is and where it came from so you can pay homage and use some of the sounds from the original film. Prometheus is in the future, but it relates to the beginning of man, and the beginning of man theoretically is this language of Sanskrit. So I was able to make a lot of the computer electronic sounds with voice samples based on Sanskrit. Using organic sounds to make something that’s not necessarily organic was important. The black goo that bubbled reminded me of Pop Rocks, so we used Pop Rocks on the Foley stage to get that sound. We just play. It’s about getting inspiration to play with sound.”

Ben: “I do a lot of period pieces, so there’s not a lot of footage. I take from other inspiration; the script, watching the reels, books. For The Pacific, I was in Australia for eight months cutting with The Cutting Room. At one point, they had veterans that had been in the war there to look at the sets. Just to get to talk with them and the sounds that they remembered hearing—those were the things that you made sure were in that show and that stuck out because that’s what those guys went through. That was invaluable.”
Ben also talked about recording his own sounds. “I do a lot of recording for my shows, which is what makes it special.” He explained that sometimes this process results in interesting sounds other than what he was trying to capture. “I’m always listening to how a place sounds. It might not relate to the project you’re on, but maybe there’s something special about how it sounds or how it was recorded.”

Paul: “When I start a new project, I will try to source out a lot of different things instead of one thing at a time. Sometimes when you’re going through sounds for one thing, you come across something that you think would be a really cool sweetener for something else that you wouldn’t have thought of or found if looking for it. It’s one of those happy accidents and they happen all the time for me.”

Harry: “When you’re working on a lot of films in succession, you become an expert on whatever the movie is about for the time that you’re working on it. Then you move to the next and there are still all of these sounds in your head from past movies, and that really helps.” Harry discussed the variety of inspiration for the film *Deepwater Horizon.* “We researched a lot on YouTube. We used our library, recordings that we made, and morphs—like taking fire and morphing with animals. We were researching the sound of deep-water drilling rigs and watching a lot of videos. That gave us an inspiration of what it would sound like. The director’s vision was to make it very spatial, dramatic, and we took a lot of inspiration from him as well.”

Paula: “You get a lot of information [about the director’s intention] from the guide tracks that you receive. I always use those as markers for points that the director is thinking about.” Paula talked about her unique work on the recently released film, *Hands of Stone.* “I was on this movie for two and a half years and what I realized close to the end was that, essentially, what I had just participated in was creating the sonic heart of Latin America—which had never really been heard before. He had scenes where there were a million things going on at once and you shouldn’t have been able to understand any of it and somehow you could understand all of it. I really had to listen to what the director was saying and realize that we were creating these tornados of sound that were cacophony. It’s something we (outside of Latin America) are not used to hearing—we have a very different way of hearing the world. That’s what’s truly exciting when you can help pull forward the voices of other cultures. It was a huge lesson for me because it really was about sitting back and trying to understand an entirely different set of ears and different ways of hearing the world—and then channeling that.”

Paula also discussed her approach and mindset to sound design for the dragons on *Game of Thrones.* “I inherited the dragons when they were toddlers. Each year, they would have to have new characteristics, as they would go from toddlers to teenagers to grown-ups. I had to maintain the voice—the original voice—yet make them grow. I tell stories to myself when I’m designing that often have nothing to do with the movie. When you create a story for itself, it’s not necessarily the same story that the viewer is going to see but there is an overarching logic to it. My story with Drogon is that he’s her hot lover from Season One and the other two dragons are like Beavis and Butthead. I have to make choices—sounds are absolutely limitless so you have to have some kinds of parameters for yourself.”
BEST ANIMATED FEATURE
BEST FILM EDITING
BEST SOUND MIXING
BEST SOUND EDITING

“A work of supreme confidence.”
FORBES - Scott Mendelson

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BEST SOUND MIXING AND EDITING

VINCENT COSSON Re-Recording Mixer
DAVID MIRANDA Sound Design

“EXTRAORDINARY IN ITS PIERCING INTIMACY AND LACERATING IN ITS SORROW, ‘JACKIE’ IS A REMARKABLY RAW PORTRAIT OF AN ICONIC AMERICAN FIRST LADY.”

DAVID ROONEY - THE HOLLYWOOD REPORTER

FOR YOUR CONSIDERATION
What do you do to find inspiration when you have “sound block”?

**Paul:** “There’s almost no wrong way to start. You put a sound to the picture and, if it’s the wrong sound, you can ask yourself, ‘Why is this the wrong sound and what should it be?’”

**Will:** “The most useful thing is to work as fast as possible to get something in there (even if it sucks) because then you can, at least, say it sucks and figure out why. Something I do is mute everything and try to imagine it in my head. That’s the easiest part. I can hear it in my head and then I have to figure out how to do it. Sometimes it’s making the sounds with my mouth.”

**Mark:** “I would turn everything off but the dialogue and the picture and just watch it that way. That helps me think clearly.”

**Paula:** “It’s very hard to get from what you hear in your head and to find or make those sounds to create that sound that you imagine. One thing I noticed earlier on in my career was that the effort it took to spit out what was in my head was so long. If you do something difficult and worked very hard and the director says, ‘No, I don’t like that …’ it’s the hardest thing because you have to go back and figure it out again. It’s easier for me now to get in that place so I can tap dance faster when I’m wrong and have to shift gears. It’s not as terrifying because I know I will find my way again.”

**Harry:** “I use samplers a lot that you can tie to various parameters like sliders and wheels. I use vocoders, a morph plugin, so a lot of times you’re shaping a sound with your mouth. I turn on the recorder and just let it run and you can find your way to something interesting. You only have to get the sound once because you’re recording.”

How do you deal with criticism and approach changes when you’ve invested a lot of time in your work?

**Mark:** “Try to get something out fast. The faster you work, the less precious you are about it. Work simply and work your way up to something more complex. Explore your ideas and progress with the filmmakers so you don’t go 180 degrees. Instead, you get about 45 degrees and get an idea and then have to redirect a bit. The process is very collaborative—you don’t show up at the end and say ‘look what I’ve done.’ It’s involvement throughout.”

**Harry:** “What we do is art but it’s art in the service of somebody else’s vision. You might have an idea of what you should do, but if it doesn’t jive with what the director wants you to do, you have to throw it out right away. You have to garner from the director what it is about the scene that excites him and you have to try to find that.”

**Paula:** “We are artists. We all have points in our career when you work very hard on something and are disappointed if it’s not received in the way that you hoped. If you are so compelled to make something beautiful and to make a sound sculpture that you like—another strategy is to find another way where you are in complete control of what you’re doing. I try to pursue my own work. If you’re an artist that’s always in the service of other artists, you have to chew on your ego and swallow it many times. It’s part of the job.”

Other audience questions.

Paula brought up that “sound design” is still a new term. “Our job and what we do is basically the same as what a composer does, but we are not afforded the same amount of sacred space to work on it.” She suggested that it’s an issue that needs addressed because of the expectations placed on sound designers for the time given to work on a project.

Harry answered an audience question about working with directors in an immersive audio environment. “We have to retrain ourselves—let alone a director—to use space appropriately. There are times when it’s completely appropriate to take a theater and turn it into a theme-park ride. There are ways to use the space in a more subtle way. We’re all just finding our way.”

In regards to mixing for virtual reality (VR), Will commented, “VR makes you feel like you’re there in a visceral way, but it’s not so great at making you feel emotions the way film is so good at. We’re doing a film called *Passenger* and taking the same sounds in the film and putting them in the VR world. That’s the challenge for VR: How do you get the best of what VR does (the tangible sense of physicality)? How do we do this from a sound point of view when we don’t have control of the mix? Mixing is one of the tools that we use to make things abstracted a bit more and make you draw into the film in an emotional way and not an intellectual way. It’ll be interesting as it evolves as a medium—how do we make it more emotionally impactful?”
Workflow for Musicals in Film and Television Production
Presented by the CAS

The moderator was Glen Trew CAS (Nashville, Dirty Dancing: Havana Nights), and panelists included Gary Bourgeois CAS (Step Up All In, Janis), Phillip W. Palmer CAS (Better Call Saul, Glee, American Horror Story), Peter F. Kurland CAS (O Brother, Where Art Thou?, Walk the Line, Hail, Caesar!), David Klotz (Glee, Iron Man, Game of Thrones), Gary Raymond CAS (Roadies, Get on Up, Rock Star), and Tim Boot (Jersey Boys, Dreamgirls, Hanna Montana, The Movie).

Here are some of the major takeaways from the talk:

The classic manner of recording for musicals is to prerecord the final songs in a studio before doing the live action production sequence on set. Ensuring the transition from spoken dramatic scenes to flawlessly prerecorded music featuring key characters is complex and sync is often difficult to retain. Quick camera work, complex choreography, and set acoustics make live recording from the set rare and often unideal. But live playback can capture the “perfect imperfections,” as Glen Trew explains. This can add a level of realism and believability to a sequence.

Glen Trew reflected on his work on Nashville, explaining that he gave an ear wig to performers on set to match rhythm and pitch to the studio-recorded material. This helps ensure sync in post and create a smooth transition from production to the engineered and recorded musical performances as the crosspoint of production to prerecorded material can be adjusted. Also consider live recording on set if the space will work. An authentic performance of material is always best to match to action and capture the characteristics of the real space. In fact, on Nashville, they record live on set as much as possible, especially for acoustic sequences. Glen explains that on set, live recording can catch “the nuances and detail of a performance.” The panel gave the example of Peter Kurland’s work on Walk the Line as a successful example of a live-recorded performance where instruments were discreetly fed and manipulated later in post to create an incredible soundtrack. Interestingly, the fast pace of the schedule often had the shoot happening before the actor had sung their music in studio and thus had to lip-sync to a temp singer. Phil Palmer recalled on Glee that he would have 12 wireless mics ready on his cart with two boom operators splitting the tracks frequently for live-music recording. Live mix was always track 1 and the music would always roll on track 2. “We have to be ready to record both live vocals during musical numbers, as well as dialogue mid music.” The two-track mix has proven to be the best way to achieve that. The production schedule would have him completing an episode in eight days with 5-10 musical numbers per episode. Music editor David Klotz said the workflow for him was very different on Glee than on nonmusical productions, as he was taking prerecorded studio tracks and preparing them for on-camera playback. Klotz and Palmer created a workflow that often turned music around overnight, which provided the music stems in a way that facilitated the playback on set. Those stems included an audio version of timecode, a click track, a 40 Hz thump track matching the click track, a mixed music track, each lead vocal on its own stem, background vocals stem, and any other special music or vocal stem that may be needed. Having the timecode as an audio track allowed for speeding up or slowing down the music to match camera off speed frame rates, keeping the actual lip sync in tact.

Gary Bourgeois expresses how there are “certain senses of reality” that must be included to sell a performance. He cites using cloth and/or Foley in addition to a clever crosspoint from production to music as key in selling the actor as giving a live performance where material is pre-recorded. Gary stated, “You must use Foley to sell even

“We have to be ready to record both live vocals during musical numbers, as well as dialogue mid music.”—Phil Palmer CAS
“BIG, GRAND AND WONDROUS. 
THE CINEMATOGRAPHY, SOUND DESIGN 
AND SCORE MELT INTO A SEAMLESS, 
ORGANIC WHOLE.”
TIME | STEPHANIE ZACHAREK

“DEEPLY HEARTFELT AND EMOTIONAL.”
LOS ANGELES TIMES | KENNETH TURAN
sync-perfect material.” He also reiterated Phil Palmer’s statements that oftentimes catching the sync of words right before and after a breath is more important than perfect performance sync throughout. He also recommends requesting a live recording from production during playback, as this will give him an example of the room he is matching. He may add space that is artificial to infer a different reality for the narrative in the mix, but the guide of the actual space can be useful at the very least for matching the needed sound from production and creating a more realistic transition.

Building an Immersive Room: Small, Medium, and Large
Presented by Westlake Pro

Moderated by Jonathan Deans, CTO, Westlake Pro. Panelists included Jerry Steckling CTO, JSX Audio; Mark Binder, re-recording mixer, IMN Creative; Tom Brewer, re-recording mixer, Sound Cove; Brett Crockett, VP Sound Technology R&D, Dolby Laboratories; Bill Johnston, VP of Engineering, Formosa Group; Nathan Oishi, Director of Engineering, Sony Pictures Studios; Peter Chaikin, Director of Recording Solutions, Harman International.

Check out some of the highlights from the discussion below:

What do you see as the first steps to consider when designing a room (from an acoustics and monitoring standpoint)?

Mark: My advice to everybody—immersive audio is where we’re going. This is the new art form and it’s turning into the Wild Wild West. I own four Dolby Atmos rooms. There are physical things to do (relating to the height of the ceiling, size, and power requirements), but I think we can’t sit and think there’s one solution for all. By pure physics/science, nothing is going to sound the same. It’s like the old music days—I hope that we all start thinking about where we came from and say, “translation is about how much time you have behind your board or your computer system.” There is no easy or fast answer.

Jerry: Translation between large and small rooms is an age-old problem. I don’t believe the translation back-and-forth with immersive sound has changed very much at all. We do want to consider scaling the power bandwidth of the loudspeakers. You have to consider where is the target? Is it a large theater with 48 surround speakers? Is it eventually going to be a home play?

Bill: When you’re scaling from an edit room all the way to a dub stage—in your smaller room, you have to go with a consumer format. In your larger stage, it’s obviously going to be theatrical Atmos. It’s when you start to get into a lot of the meat work in the middle of the market where you’re doing features, television, home theater mastering … then your design process becomes difficult in that you have to place your speakers in certain ways to handle both the consumer market and the theatrical format. You have to take a step back and realize, “Where am I going to put my speakers?” You might have to make some different decisions on what speakers you’re choosing, what kind of power handling you’re having, and the placement of those speakers in the room.

Peter: If we’re talking about immersive audio, we’re talking about putting a lot more speakers in a small room. Where are you going to put them all? How are you going to power them? How are you going to mount them? What are they going to block? In the broadcast environment, there’s displays everywhere. We realize that the speakers needed to be small and they’re going to be used at a greater working distance. By the time you take any of the existing small speakers and put them where they need to be, they don’t have enough output. Many of the speakers have limiting in them to protect the drivers and, by the time you take a speaker intended for a near-field application and put it 10 feet up—that speaker is well into compression. In other words, limiters are in there. We started with a design for transducers that could fit in very tiny boxes and generate a huge amount of output—not loud but dynamic range. If you use that speaker at a reasonable distance, you’re going to get the 105 in the Dolby spec.

What solutions have you considered for monitor control?

Tom: QSC DSP monitor controller. To go from a simple editorial and pre-dub/mix room in my house and adding those four top channels didn’t take much to do. I think the DSP was the key and getting someone in to tune the room really well. It’s like anything else—if you spend time treating your room right and balancing the room right, adding the top speakers is almost a no-brainer. I’ve found a lot of success in a really simple setup—not even using an RMU (Rendering and Mastering Unit) but just a local renderer so it’s software only. I can essentially do my whole mix there.

Nate: We have Harrison engines that work great. In our small room (home theater immersive), we went with a truss system, which allows us to move things. We left the JBL fronts behind the screen. The manufacturers are helping us immensely at coming up with great tools. In the small room
“It manages an emotional complexity that puts most supposedly grown-up movies to shame.”

–Bilge Ebiri, THE VILLAGE VOICE
for monitoring, we’re using a DAD and BSS solution. It’s digital all the way to the Crown amps and working great. Scalability and flexibility is key.

Bill: We’ve been mostly using BSS systems. When you’re working in a smaller room and working with a lot of different sources, you do get into problems with sample rates. You do have to be conscious that you have a lot of different sources. We have gaming rooms with Pro Tools, Nuendo, and a Marantz receiver that’s decoding games. You have to do some kind of buffering from your monitor system and you have to be cognizant of your monitoring system.

What other considerations are there?

Jerry: Rooms are starting to get deader. That was an important learning thing getting into immersive: Do we build the same dampening into the walls? If you want to fix your room and modify it, here’s what we’re finding in immersive sound rooms: the ceilings, etc., aren’t usually damped enough. It’s the back wave off the ceiling speakers that might be an issue. We’re hanging speakers off of side walls that maybe need more dampening. You have to consider the detail of the reverb or where these reflections are coming from (versus overall reverb time).

Bill: Yes, over the years, the rooms are getting deader and deader. Especially in the small-room environment, people like fairly dead environments. It helps to get a more theatrical feel. The room is taken out of the equation to a larger degree. I think everyone getting into immersive should spend a little time and a bit of research into psychoacoustics because it plays a huge role in all of this. How many point sources can I identify at one time in a room? What do the acoustics of the room do to that identification? We’re trained to look for the tiger coming from one direction and now we’re trying to listen to sounds that are behind us. A dead room makes it easier to hear and localize those sounds. There’s a reason why, in an Atmos system, there are so many speakers—especially in the rear view. It’s the only way that you can hear localization at all behind you. If your room is extra live, you won’t have a clue what’s happening overhead or behind you because you can’t localize it that well.

Jerry: We inherit a given space to build a studio or stage and sometimes the doors and entryways are just not appropriate, so we compromise a lot. Sometimes the door is where a speaker should go.

Peter: Cinema speakers and studio monitors do translate—the key to that is the directionality and directivity of the speaker. This means that if you design a speaker that has uniform directivity from the highest frequencies through the crossover all the way down, it will fill the room neutrally with sound. Therefore, different places in the room (and from room to room), you’re going to hear more of the same thing. With that said, the room is in control in the low-frequency area and that’s probably the most difficult thing to tackle for these small and medium rooms. We can certainly deaden an environment and take care of mid and high frequencies, but if the speaker is well-behaved and well-designed, it’s going to be very predictable in a range of spaces. There’s no simple answer for the low end.

Jerry: In years past, we had the real estate to put in larger bass absorbers and now it’s not happening as much. We’re using DSP and oftentimes canceling loudspeakers. We’ll put in subwoofers instead. I think when we’re talking about dead versus live, we’re talking about the fourth octave on up. With the first 3-4 octaves, we’re talking about placement of subwoofer versus the aspect ratio of your room which can make a big difference. Then if it’s just one subwoofer, you can potentially EQ for the listening spot and see if you can cure some of the mode problems. After all of that, it’s about understanding what your problem is. You know where your peaks and valleys are in your frequency response.
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Best Sound Mixing
Sound Mixer
MATTHEW NICOLAY, CAS
Re-Recording Mixers
ANDY NELSON
DEREK VANDERHORST

Best Sound Editing
Supervising Sound Editors/Sound Designers
DEREK VANDERHORST
WAYNE LEMMER

HIDDEN FIGURES
Mark: Once I brought a dear mentor and friend, Mark Mangini, a scene where I had cut hundreds of tracks. He took me aside and said, “Mark, it’s not about cutting sound—it’s about cutting the right sound.” I took it to heart—it’s not as easy as it sounds. The reality is we can load our systems up with so much stuff that we break our own purpose. Our purpose is to find the right thing—the right sound. So, I think the first thing we all need to look at when we jump in, is to understand the car we’re driving. If it’s a smaller room, don’t cut 1,200 sounds and don’t have 1,300 plugins. Understand the capabilities of the software products—that you can freeze, you can bounce, etc., and stay on target. You have to realize the tools you’re using and use them responsibly.

For signal flow, are you utilizing Dante? How are you exchanging info throughout the facility?

Nate: In Sony’s small rooms, we’re using Dante and BluLink and MADI from Pro Tools. With the bigger rooms, we’re still using that back end (Dante to BluLink).

Bill: Formosa is heavily into RedNet in the big and small rooms. It’s relatively inexpensive, scales up incredibly well. Using it with HD32R interfaces on Pro Tools.

Tom: We’re software only, running into QSC for monitoring.

Mark: We use a Dante card to BSS for EQ and MADI bridges to a Dante card.

Mark: I’ve never heard a great mix not sound good everywhere. We just have to learn from our mistakes and just go for it. Don’t be intimidated and think that there’s a perfect way to make a great spaghetti sauce because there’s lots of ways to make great spaghetti.

Production Sound Pavilion

Events at the pavilion included “Remastering Cinema Audio for ATSC HDTV,” presented by Lou Neumann CAS, “EQ and Noise Reduction in the Field,” presented by Bob Bronow CAS with Joe Foglia CAS, and The Parade of Sound Carts. All were sponsored by CAS. The first discussion was an overview of loudness levels and surround sound management when mixing for broadcast distribution. The second discussed why, although a growing trend, heavy noise reduction on set is discouraged, as it can pin the hands of the post mixer to fully manipulate it in order to serve the narrative. And the third was a standout affair …

The Parade of Sound Carts

The Production Sound Pavilion was the newest addition to the annual Mix “Sound for Film” event held at Sony Pictures Studios. At the heart of the Sound Pavilion was The Parade of Sound Carts, formerly a standalone event held by the CAS, and a pair of audio workshops presented by guests and members. This event was heavily attended and highly reviewed by participants. Mark Ulano CAS offered, “Over the past decade, production sound has become much more complex, as technologies and workflows evolved both on set and in post production.”

The Parade of Sound Carts gathered more than a dozen production rigs by many of today’s working professionals in motion pictures, television, and commercials. The event was managed and coordinated by Chris Howland CAS and Don Hale CAS. The event kicked off two solid hours of presentations and discussions of how each of these production carts are personally designed and crafted for the artist to work, capture, and deliver their sound mix and assets.

Each presenter was able to have a few moments to discuss their design and build for how they work and function—as well as how they often pack and move with the ever-growing speed of production. This event was unique in that the audience was highly comprised of post
“Over the past decade, production sound has become much more complex, as technologies and workflows evolved both on set and in post production.” – Mark Ulano CAS

production sound professionals who don’t often get to see the production sound rigs in person. There was a noticeable degree of awe at the level of workmanship and build that the production mixer’s put into their set rigs with many questions and discussion.

The participating production members who showcased their carts and their recording and mixing components included:

Tom Curley | Recorder: Sound Devices 788T | Mixer: Sound Devices CL-9
Michael Martin | Recorder: Zaxcom Nomad 12 | Mixer: Zaxcom Mix 8
Danny Maurer | Recorder: Sound Devices 664, Sound Devices 633
Devendra Cleary | CAS | Recorder: Sound Devices 970, Sound Devices Pix 260i, Sound Devices 664 | Mixer: Yamaha O1V, Sound Devices CL-12
Charles Mead | Recorder: Sound Devices 688 | Mixer: CL-12
James DeVotre | Recorder: Sound Devices 688 | Mixer: CL-12 Alaia
Blas Kisic | Recorder: Boom Recorder, Sound Devices 788 | Mixer: Mackie Onyx 1620
Fernando Muga | Recorder: Sound Devices 788, Sound Devices 633 | Mixer: Sound Devices CL-9
Thomas Cassetta | Recorder: Zaxcom Nomad 12 | Mixer: Zaxcom Oasis
Chris Howland | CAS | Recorder: Boom Recorder, Sound Devices 688, Sound Devices 633 | Mixer: Mackie Onyx 1620, Sound Devices CL-12
Brian Patrick Curley | Recorder: Sound Devices 688, Sound Devices 664 | Mixer: Sound Devices CL-12 Alaia
Daniel Powell | Recorder/Mixer: Zoom F8
Landon Orsillo | Recorder: Sound Devices 688

Master Classes

In addition, master classes were offered from Steinberg on new solutions offered by their editing and mixing software Nuendo. Auro-3D held a presentation highlighting the uses of object-based audio and the sonic differences between channel-based and object-based audio.

Sponsor Programs

Yamaha/Steinberg held a showcase of their all-in-one platform Nuage, (with integrated Nuendo), and JBL Professional had a display of their 7 Series Master Reference Monitors set up for small room immersive audio production. But the standout event was by Avid in the Cary Grant Theatre ...

The Sound of Stranger Things
Sponsored by Avid

Moderated by Ozzie Sutherland, Pro Audio Solutions Specialist for Avid, with panelists, sound designer Craig Henighan, re-recording mixer Adam Jenkins, re-recording mixer Joe Bartlett, supervising sound editor Brad North, music editor David Klotz, and sound FX editor Jordan Wilby.

This was an in-depth discussion on the inspirations and creation of the sound of Stranger Things. It included clips of the show, isolated stem playback, and Pro Tools sound design sessions. It was really incredible to hear Craig talk about his inspiration for the creatures (sea lions!!) and the light bulb sound design—and then see how those inspirations were given breath through the technology. It was also interesting to hear about how the music and sound design were often indistinguishable and needed to co-exist and meld successfully.

As the show used early ’80s synths, there were some challenges. Music editor David Klotz explained that the technology of this era did not have patch recall. Oftentimes, a version of music was sent over and notes were received, but recalling that exact sound was impossible. So, the music editor had to step in in a more in-depth fashion at times. But beyond the challenge of ’80s synth technology, everything was edited, pre-dubbed, and mixed using Pro Tools and an S6, making communication and manipulation of elements between the members of the sound team easy. It was an incredibly interactive visual and auditory experience.

Sound Reel Showcase

To conclude this event, members were led into the Dolby Atmos and Auro-3D equipped William Holden Theatre to enjoy clips of not-yet-released films and award contenders, including Hacksaw Ridge, Deepwater Horizon, La La Land, The Magnificent Seven, and many others.

This event is an incredible event with amazing networking and education benefits. Thanks to all of our co-sponsors and presenters for making it a wonderful experience! Please consider joining us next year. CAS members do receive special pricing!
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BEST PICTURE
BEST DIRECTOR and
BEST ORIGINAL SCREENPLAY
Kenneth Lonergan

BEST SOUND EDITING
SUPERVISING SOUND EDITOR
Jacob Ribicoff

BEST SOUND MIXING
PRODUCTION MIXER Kevin Parker
RE-RECORDING MIXERS
Jacob Ribicoff, Roland Vajs

“A MASTERPIECE.”

RollingStone AP Entertainment USA TODAY THE WALL STREET JOURNAL

“AN ELEGANT COMPOSITION OF IMAGE AND SOUND
THAT IS FILMMAKING AND STORYTELLING AT ITS BEST.”

A picture by KENNETH LONERGAN

MANCHESTER BY THE SEA

“A MOVIE OF SYMPHONIC AMBITIONS.”

Variety

“BRILLIANT CONTRIBUTIONS FROM
CINEMATOGRAPHER JODY LEE LIPES
AND COMPOSER LESLEY BARBER.”

RollingStone

Los Angeles Times CRITICS’ PICK

VOICE GRADE A Entertainment

Amazon Studios
AmazonStudiosGuilds.com
On August 13 at Warner Bros. Studios, brothers and sisters of the Cinema Audio Society and a guest enjoyed an exclusive screening and reception. At 5 p.m., hors d’oeuvres and beverages were served and members and their guests mingled before the 6:30 screening of the 1993 blockbuster, *The Fugitive*.

The event was made complete by a Q&A with director Andrew Davis, production mixer Scott D. Smith CAS, supervising Foley editor Solange S. Schwalbe MPSE, and re-recording mixers Frank Montaño, Jeffrey J. Haboush CAS, and Michael Herbick.

The inside perspective of these professionals was invaluable. While the movie sounded fantastic, 23 years ago, 5.1 surround sound was novel and the workflow was very different. Frank recalls that they set a new speedy standard at the time, mixing *The Fugitive* in four weeks over four stages (probably 12 weeks’ worth of hours). Donald reiterated, stating that “there was no copy/paste.” He recalled they had just gotten this crazy thing called “automation.” There was a lot of “eye-ear-hand coordination.” Live mixing and printing was still very much the game. The group was still so fired-up about the sound of the film—teasing one another as they took their seats saying that they “have just a few notes.”

Now, they describe their workflow as very different due to technology, time demands and limited budgets. Frank teased, “Nowadays, we mix a film in four weeks but spend eight weeks on deliverables.” Supervising Foley editor Solange was asked whether, with the cutting pace increased and staff decreased, the standards and expectations have lowered. She responded, “You don’t have a choice … or you won’t be on another film.” Even with technological innovations, the smaller teams make the workload heavier—and the timeline to produce the same quality of material is much shorter.

When I asked the panel whether they were truly able to watch the film and enjoy their mix or whether they still pick apart their work (as we all do) or lament the lack of technology in one area or another, Frank Montaño (who has garnered seven Oscar nominations, including one for *The Revenant* last year), explained, “There is always something that will haunt you, but you have to put yourself back into that space and that time. It is not fair for me to say 20 years later, 147 movies later, that my game would be the same.” When he takes himself back, he goes “Not too bad … it holds up.” Jeffrey J. Haboush sums up the panel’s sentiments by saying, “I am grateful to be part of history. I am lucky to still have the rawness [for audio] in my body like these other people here and it was a real honor to be part of this movie.”

It was a great Saturday night. Make sure to keep your information current with the CAS office and look out for more member events brought to you by the CAS.
FOR YOUR CONSIDERATION IN ALL CATEGORIES INCLUDING

BEST SOUND MIXING
PRODUCTION MIXER DREW KUNIN
RE-RECORDING MIXERS TONY VOLANTE, ROBERT HEIN

BEST SOUND EDITING
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ROBERT HEIN

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Film Stage

A film by Jim Jarmusch

PATerson
PRESENT AND FUTURE AVAILABILITY OF SPECTRUM FOR RF MICROPHONES

BY ED GREENE CAS

PREFACE

In a hypothetical situation, let us assume for a moment, that we as mixers who live in a world of reality, asked the producers and directors whom we serve, that since frequencies for RF microphones may soon be less available, would they consider reducing their use of RF technology? From personal experience, the hypothetical answer is: “That’s a silly question, in fact, we need more!”

WITH THAT IN MIND, PART 1 RF spectrum users requiring a limited number of frequencies

In our world of RF spectrum for audio, there are two distinct mixer groups: first, feature motion picture and episodic production mixers on location with limited numbers of RF’s and second, live-event mixers using much larger numbers of RF’s. The fact is, with advancements in audio quality and RF technology, the use of RF microphones is rapidly becoming a production mixer’s first choice as well. I will attempt to discuss how each group now finds the number of usable frequencies they need. First, a few things to remember.

1. A while ago, I was privileged to be with a group that visited with two FCC commissioners, a representative of the chairman, and their engineering group. We found the FCC was well aware of the RF needs of multiple users; production mixers, broadcast, sports, theatre, along with the public’s insatiable use of cellphones, tablets, etc. They understood that at times, all the above needed to function in close proximity to each other as in a major broadcast, concert, or sporting event.

2. In general, the CAS production mixers I spoke with, with the help of manufacturers’ software, are able to successfully find usable channels for their RF’s. There is an excellent companion article in this issue by Devendra Cleary CAS about antennas. Without question, a proper antenna is the key to the successful use of RF microphones. Next is a small sample of some of their experiences.
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CLIFF MARTINEZ

BEST SOUND EDITING
EDDIE SIMONSEN
ANNE JENSEN

BEST SOUND MIXING
ROBERT EBER, CAS
EDDIE SIMONSEN
ANNE JENSEN

"BEWITCHING TO LISTEN TO...WITH ITS NIGHTMARISH SYNTH-ON-STILETTOES SCORE BY CLIFF MARTINEZ...ENTIRELY MESMERIZING."
Justin Chang, Los Angeles Times

"'THE NEON DEMON' CONTINUES WINDING REFN'S COLLABORATION WITH CLIFF MARTINEZ FOR THE COMPOSER'S MOST EVOCATIVE SCORE YET."
Wendy Mitchell, Screen Daily

"CLIFF MARTINEZ'S DAZZLING SCORE SETS A SEDUCTIVE, CREEPY TONE."
David Lewis, San Francisco Chronicle

"IMPRESSIVELY AUDACIOUS."
Brian Truitt, USA Today

A FILM BY
NICOLAS WINDING REFN

THE NEON DEMON

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RICHARD LIGHTSTONE CAS, Past President, Production Mixer

Current project: Netflix’s Dear White People

Richard owns 12 Lectrosonics RF’s and depends on their “smart tune” to find usable RF frequencies, along with a “frequency finder” app. He typically uses 4-6, up to 9 RF’s. His two booms are hard-wired 80%-90% of the time but when wireless, he uses Lectrosonics SMa into a Denecke 48V box. For IFB’s, his crew listens to Lectrosonics R1 receivers with producers and others on Comtek PR 216’s.

GLEN TREW CAS, Board of Directors, Production Mixer

Recent and current projects: Hannah Montana: The Movie, Country Strong, Stoker, Red State, 42 (shared with Jeff Wexler CAS); presently shooting Nashville.

Glen uses six Lectrosonics bodypack RF’s and two Zaxcom plug-on RF’s and uses their software programs to determine the best usable frequencies. He finds Nashville (the area) has reasonably clear RF channels available. The two Zaxcoms are used for wireless booms. As a protection, he also uses their capability to record a file in the transmitter. So far, he hasn’t had any dropouts where retrieving the back-up file was necessary. Glen runs up to four monitoring and foldback systems. These include Comtek 216 systems for producers, Lectrosonics IFB’s for crew with separate systems for booms and music playback to Phonaks for talent. He’s recently resolved some RFI issues between his foldback systems and production RF’s.

DONAVAN DEAR CAS, Production Mixer

Recent and current projects: Roadies and Scorpion

Donavan uses his own 16 Zaxcom RF’s, a Comtek system for producer monitoring, along with Shure “In Ear” RF monitoring for two boom operators. At each location, the Zaxcom software programs guide him to the best usable frequencies. However, Donavan described several real challenges recording Scorpion. “The director has a limited number of camera hours for each episode and the network asks the script be written for all actors to speak as much as possible in every scene.” With limited time and an ambitious shooting schedule, on occasion, there are RF dropouts. To protect the recording of this much dialogue, Donavan uses the time-stamped file recorders built-in to each transmitter to retransfer any missing lines. What is slightly scary is where directors stressed by time constraints may lean too heavily on transmitter files to save production time. While this seems more an issue in television episodes than features, it could lead to a further excuse for diminished dialogue quality.

DEVENDRA CLEARY CAS, Production Mixer

Current projects: The Last Man on Earth (Fox), Secrets and Lies (ABC), Murder in the First (TNT)

Devendra owns 18 Lectrosonics, typically using eight wireless on talent and two wireless for booms on narrative projects. He uses Lectrosonics’ Wireless Designer for choosing frequencies and runs three channels of IFB’s for producers, clients, and boom totaling 13-14 frequencies. He is a big promoter of antenna height for better, more consistent reception. Devendra has written a companion article about antennas in this issue as a tutorial for effective antenna protocol.
There are only a limited number of RF vendors around the country with the engineering capability and equipment to make projects of this size work. Those that come to mind: (in LA) Soundtronics Wireless (also in Las Vegas), ATK Audiotek, (in NY) Firehouse Productions, Masque Sound, Sound Associates, PRG, Professional Sound Services, and CP Communications. My apologies to any I may have inadvertently left out. From my experience, all the vendors are good people and support each other on very large projects or when multiple shows all fall at the same time. For purposes of this article, I’ll focus on just one vendor, Soundtronics Wireless, and its owner, David Bellamy.

If not the primary RF vendor for most live-event shows in the LA area, often the technology and attention Soundtronics Wireless has developed is in large part responsible for their success. One example: For more than eight years, I was the production mixer for American Idol on Stage 36 at CBS TV City. Idol typically used 50-plus RF’s for its host, judges, contestants, some instruments, vocals, etc., along with a large wireless stage manager and communications PL system. Dennis Dreier is the CBS person in charge of approving frequencies. The stages are reasonably well-shielded from each other but Dave Bellamy, finding an unreasonable amount of reflected RF from Mount Wilson, from the west wall of Stage 36, covered that wall with an RF paint designed to minimize its effect on the stage RF sys-

PART 1 IN SUMMARY
At present, there seems to be a reasonable and clear path to usable frequencies for production people working on features and episodic television. For their part, RF system manufacturers have stepped up with technology to help RF system users quickly find usable frequencies for safe operation. At the same time, it seems logical that these manufacturers are looking to a newer generation of high-quality systems requiring less spectrum space. From my brief experience visiting the FCC, they are aware of the present prolific use of the RF microphone spectrum by many users for wildly different applications. Best to periodically check with manufacturers of the RF’s you are using and/or the FCC at fcc.gov to learn of any pending reallocation of RF spectrum.

NOW PART 2

RF spectrum users requiring a large number of frequencies

While I will discuss primarily television projects requiring large numbers of frequencies, they are almost always associated with stadiums, concert halls, multistage motion picture and television facilities, etc. For these projects, there is often a person or office assigned by the venue to clear and regulate frequency assignments.

There are only a limited number of RF vendors around the country with the engineering capability and equipment to make projects of this size work. Those that come to mind: (in LA) Soundtronics Wireless (also in Las Vegas), ATK Audiotek, (in NY) Firehouse Productions, Masque Sound, Sound Associates, PRG, Professional Sound Services, and CP Communications. My apologies to any I may have inadvertently left out. From my experience, all the vendors are good people and support each other on very large projects or when multiple shows all fall at the same time. For purposes of this article, I’ll focus on just one vendor, Soundtronics Wireless, and its owner, David Bellamy.

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Next door on Stage 46 was (and still is) Dancing with the Stars (DWTS), with a similar complement of RF and communications channels. The two shows rehearse and are on air roughly at the same time. All in all, between the two shows, there are probably close to 150 frequencies operating simultaneously. Soundtronics Wireless provides RF’s and frequency allocations for both shows. Dennis Dreier is the CBS person in charge of approving frequencies. The stages are reasonably well-shielded from each other but Dave Bellamy, finding an unreasonable amount of reflected RF from Mount Wilson, from the west wall of Stage 36, covered that wall with an RF paint designed to minimize its effect on the stage RF sys-
PART 2 IN SUMMARY

It seems clear, this area of large RF system users is not for the unprepared or inexperienced. This is also true of the mixers and support personnel asked to execute these concepts. It is the sheer volume (no pun intended) of production that stresses these resources. I asked Dave Bellamy where he thought we were headed. He said a probable extension of channels above 1 GHz as a start. He expressed the hope that stages and personnel dealing with RF systems have a better understanding of their setup, operation, and limits. It’s also probable that RF system manufacturers will continue to develop new products of high quality using less operational spectrum.

Special thanks to all the CAS mixers and people I spoke with, along with my appreciation for their dedication to their craft. Also to Dave Bellamy for his personal tutorial on RF systems and their future. •

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Many of us have worked on projects that were destined for inclusion in a film festival. Some of these festivals have been the launching point for a successful career as a filmmaker or film craftsperson. I would venture to guess that not so many of us have submitted to a film festival centered on sound design. Cinesonika is such a festival. From the Cinesonika website: “Cinesonika is the premiere international exhibition for works which make full artistic use of sound’s contribution to the moving image, showcasing fascinating soundtracks, idiosyncratic sound design, eclectic scoring, and innovative approaches to the sound-image relationship.”

The Cinesonika Film Festival is the creation of Michael Filimowicz, an educator in the media disciplines at Simon Fraser University in Vancouver, BC. This festival has always been an international event, having previously been held in Vancouver, BC, Canada, and Northern Ireland. Now in its fifth year, the festival was hosted by Ball State University’s Department of Telecommunications in Muncie, IN, during the weekend of September 30-October 1, 2016. CAS Associate member Vanessa Theme Ament PhD was the master and commander who brought the festival to Ball State this year with the support of her Chair, Tim Pollard, and Dean, Roger Lavery. The festival has always brought research about sound design and films that pushed the sound design boundaries together in an academic environment to explore the collaboration of sight and sound. Evidence of this was this year’s keynote speaker, Rick Altman PhD, who is an author and editor of many scholarly publications concerning the use of sound in film, including *Sound Theory/Sound Practice*, which has sold more than 30,000 copies to date and is just being published in Chinese. In addition to the panels given by participants and the viewing of films, the Golden Earwax Award was presented to the film considered to have the best use of sound. This year’s award went to the Polish film *Object*, by filmmakers Kasia Szczerba and Paulina Skibinska. In addition, Ball State undergrad Joshua Kattner gave a demonstration of the music production studios in cooperation with Dr. Robert Willey of the school’s Music Department.

Almost 40 films from filmmakers around the world were submitted to the festival this year. They included genres inclusive of narrative and documentary films, animation and visual music, lyric films, interactive, installation,
performance video, and live-performance films. In addition to the films, five papers were presented by a group of international authors. This year, Ament wanted to include a layer of Hollywood professionalism in the conference. To this end, she invited a few of her “Hollywood” friends: supervising sound editor David Stone, sound wrangler and sound designer Steve Lee, and myself, to present workshops on our areas of expertise. Ament, author of The Foley Grail, presented a panel on the use of Foley. Stone, the Oscar-winning sound sup for Bram Stoker’s Dracula and co-editor with Ament of the recently released Hollywood Sound Design and Moviesound Newsletter: A Case Study of the End of the Analog Age, did a presentation on sound supervision. Lee, sound wrangler for some of the best Sups in Hollywood while employed at Weddington Productions, presented a talk on collecting sound and his newest venture, The Hollywood Sound Museum (HollywoodSoundMuseum.org). It is Lee’s mission to collect and store much of the sounds and stories from many of the most famous films and filmmakers (and some not so famous) behind them for posterity. Finally, I did a presentation on the importance of location sound in a climate where the value of good production sound seems to be waning.

Attendance at this event was smaller than many of the film festivals out there, but the value of this experience was appreciated by all of those who took advantage of it. The facilities at Ball State were first-class and made the experience even better for the presenters and attendees alike. A big thank-you goes out to CAS Associate member Stan Sollars for his contribution to the success of this year’s Cinesonika event. The future is bright for the Cinesonika Film Festival. Cinesonika 6 is planned to be held concurrently with the Vancouver VFX Festival during the summer of 2017 in Vancouver, BC. See www.cinesonika.com for more details. •

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In late September, the Audio Engineering Society (AES) held its first Audio for Virtual and Augmented Reality (AVAR) Conference during the AES LA 2016 Convention. Given that virtual and augmented reality is slated to be “the next big thing”—with venture capital firms investing $3.5 billion into the technology over the past two years (there are even funds that specialize in VR technologies and companies)—it’s great to see the audio industry convene to discuss the topic.

Creatives, developers, and other sound professionals from around the world shared insights and information through workshop, paper, and tutorial sessions over the two-day event. Additionally, there were product demo stations set up separately from the AES Convention that showcased microphones and encoding software specifically made for VR/AR platforms. Since there was a plethora of interesting information, I’m going to focus on some of the highlight discussions (in my opinion) relative to production and post production.

**Production Audio**

There was a great workshop that took place on Saturday called “Immersive Sound Capture for Cinematic Virtual Reality” that discussed just that. The panel, moderated by Sennheiser’s Sofia Brazzola, included Henrik Oppermann (Head of Sound at Visulise Creative), Jean Pascal Beaudoin

“Normally, if you can see the camera’s lens, it can see you. With VR, if you can see the camera, it can see you.” – Benedict Green

by Matt Foglia CAS

AVAR CONFERENCE

FALL 2016 CAS QUARTERLY
(Head of Sound, Headspace Studio), and Benedict Green (co-founder, ECCO VR). Benedict started off with a great thought: “Normally, if you can see the camera’s lens, it can see you. With VR, if you can see the camera, it can see you.”

Since cameras are more centrally positioned in VR, there’s a significant reduction in where the crew and gear can be located. While there are a number of microphones that can capture audio in the Ambisonics format that are mountable on the camera, a project may wish to capture a sound in a place where you don’t want your expensive surround mic to go or where it’s not practical to use a surround mic. Due to the potential for casting shadows (and the fact that the boom op would be in the shot), shotguns are out—which leaves the production mixer with lavs and plant mics. Since mixers are unable to follow as the camera moves, depending on the distance, the backup recorder on the transmitter is one way to capture the audio while tying a portable recorder to the talent can also work. Benedict mentioned that he’s even used the inexpensive Zoom H2n a couple of times due to its four-channel surround record mode. However, it was suggested that you capture pickups, wild lines, and Foley on set with a shotgun.

If you think about the process for a VR shoot record, everything is set up, record is engaged, if there isn’t timecode available (depending on camera and audio recorder features), a clap will be recorded and then everyone gets out of the shot. It can sometimes take a couple of minutes for everyone to be out of frame. How can you—and the director—monitor what things are sounding like on set? This poses a problem.

Benedict has sent an omni plant mic to the director so they have some kind of representation of the sound. Jean Pascal stated that you can use the W channel from the Ambisonics to get an idea of what is being captured (the W channel is similar to what an omni would capture). He went on to
suggest that it would be great if you were able to monitor in binaural—but realizes that, with transmitter delays and encoding, there’d be a significant delay between sound and picture.

Another insightful tutorial featured Chris Pike from the BBC as a panelist. Chris discussed some of the capturing approaches they’re working on relative to music at the BBC. There’s an interesting article on the BBC Proms orchestral series that discusses capturing the performance with the end result being a binaural encode. The article, titled “Binaural Audio at the BBC Proms” is available at www.bbc.co.uk/rd/blog/2016-09-binaural-proms

Post Production
Post had its fair share of insightful events as well. I found the workshop “Object-Based Audio Mixing for AR/VR Applications,” moderated by Dolby’s Glenn Kiser, of particular interest. Panelist Tim Gedemer (Source Sound Inc.) made an interesting observation that we are used to getting our information from rectangles; televisions, cinema, iPhones, iPads—and now we’re shifting to spheres. As mixers, we would focus our energy and the energy of the content to that rectangle, and now we’ll have to also consider “negative space”—where a user may decide not to even look. Tim also pondered how our mixing approaches may change as people become more experienced users of VR. Panelist Nathaniel Kunkel (Dolby) stated that the discussions on how to approach mixing in an object-based VR environment are reminiscent to what mixers spoke about when mixing in 5.1 for the first time.

One panelist made the observation that since the end medium is a pair of headphones, VR/AR mixes are like binaural—but with head tracking. Mixing for headphones can be, obviously, somewhat restrictive given their typically limited dynamic range. Some stated that they mix listening on speakers and then adjust while wearing headphones and running the mix through a binaural encoder. Others swore by mixing with goggles and headphones on only, though this can cause fatigue.

Consistency of playback is also a concern. Tim Gedemer recalled how it took years to implement cinema monitoring standards so a dub stage mix translated to larger theaters. With VR and headphones, some of the EQ
curves are so drastically different that you just don’t know how they will be represented. This sounds like a familiar issue to those of us who mix for broadcast. Tim also mentioned the need for improved binaural rendering—especially relative to sounds directly in front, since they can sound like they’re coming from the center of your head. Another consideration is how a mix sounds on headphones at the console versus on headphones playing from a mobile device.

Another really fun tutorial, “3D Audio Post-Production Workflows for VR,” featured Viktor Phoenix and Scott Gershin from the Sound Lab at Technicolor. These guys have been spending a great deal of time working in the environment and shared some experiences (often accompanied by laughter). Scott made the observation that we can use audio as a navigation tool. For example, if you have a sound emit from behind, the user will, most likely, turn their head to see what emitted the sound. This can help if you are trying to direct their attention to an area—which can contribute to how you adjust levels for a scene. Scott also suggested having tone fills across each character’s dialogue for consistency and positional flexibility along with individual Foley passes for each character.

Some additional suggestions from other tutorials and workshops included: use a shotgun or omni when recording VO because you don’t want it to sound too close; don’t capture reverb as it can clash with perspective—use reverb afterward; keep non-diegetic sounds (VO, music) stationary (no tracking).

**Products**

As you would expect, there were a handful of folks displaying their VR/AR-focused products—some at the main AES Convention exhibit area and others in the special AVAR display hallways. There were a couple of 360 microphones on display, including Sennheiser’s AMBEO VR and Dysonics’ RondoMic 360 array. Dysonics’ demo allowed you to hear some live performance clips captured with their mic and experience them in VR. A couple immersive to binaural encoders were on hand including Dolby’s Atmos VR Production Suite and Gaudio Lab Inc.’s Works toolset. Gaudio had a nicely done demo of a dinosaur scene—obviously post produced—that allowed you to “see” what the sounds were doing and how they were tracking with the visual. There were also plugins and audio engines and even an interactive display that incorporated a SubPac so that you could “feel” the sound.

**Conclusion**

This conference was well put together, especially given that it was the first. The panels covered a broad amount of topics from capture to consumer. Some got pretty deep with the science while others offered a balance between the creative and science. There was strong interaction between the audience and the panels, as each session left time for Q&A.

During one of the post production-related workshop Q&As, an audience member stated, “We’ve been doing this with games for years” (meaning working with immersive audio). Gaming has been a strong model for approaches, but there are additional considerations with scripted and unscripted content, such as on-set or on-location production audio. How to capture, edit, and implement it in a convincing manner is one of the difficult challenges. Using a 360 mic may work well in some situations, but in others, it could be akin to recording multitracked music for years and then going back to just using a room mic to capture the band. It works—but it may need some post production love. It will be interesting to see how this growing format affects our industry in the years to come.
Golfers and, for the first time, poker lovers gathered together at the Angeles National Golf Course in Sunland on Sunday, September 18, for the MPSE/CAS Golf and Poker Tournament. Although it was a hot summer day with temperatures hovering around 100 degrees all afternoon, the sun and heat did not deter the enjoyment of the event. Golfers had a nice BBQ lunch beforehand and a delicious dinner with the awards ceremony. Many attended the event to show their gratitude to the honorary chair of the event, Ron Kutak, who recently retired as executive director of Local 700 after decades of service to IATSE.

The poker tournament was a new addition this year and was a big hit. First prize of a trip to Las Vegas was won by Trip Brock of Monkeyland Audio. David Bondelevitch CAS MPSE (and Secretary of the CAS) came in second, and Danielle Scott of Warner Bros. placed third.

The event had more than 80 golfers competing in many categories of awards, including a putting contest (with a possible $5,000 prize), longest drive, closest to the hole, and an opportunity to win $10,000 for a hole in one!

Golf tournament winners were:
1ST PLACE – (SCORE 61) GROUP 2A
Ron Bartlett, James Bartlett, Bruce Barris
2ND PLACE – (SCORE 62) GROUP 8A
Jonathan Corona, Mark González, Chris Colbert
3RD PLACE – (SCORE 63)
GROUP 1A*
  Duke Lim, John Naveira,
  Steve Demko, Kevin O’Connell
*Defeated 9B in a scorecard playoff on
the #6 Handicap (Hole #16)
CLOSEST TO THE PIN HOLE #7:
  Lorraine Larsen (8’5”) 
LONGEST DRIVE HOLE #9:
  James Bartlett

Keep an eye on your email and CAS
Quarterly announcements for next year’s
event. We would love for you to join us.

Photos courtesy of Paul Lester Photography
This is going to be a “less technical/more practical” article on the subject of antenna use in wireless microphone systems—specifically for production sound mixing/recording in scripted/narrative workflows. To me, it’s all just sorcery really. Be that as it may, the reality is that the RF crunch we see coming today will only get more challenging in the future. What inspired me to write this article in conjunction with Ed Greene’s “Present and Future Availability of Spectrum for RF Microphones” is the timing of the current stage in the RF frequency spectrum sell-off and the overcrowding of our frequency bands—and how this will change our style of working with wireless microphones.

The quality of our wireless tools is so high and they are so effective that I believe we have become spoiled by their spectacular performance. When I look at the tools in front of me: The wireless transmitters (body-worn or boom-mounted), the various brands of wireless receivers (portable with 1/4 wave whips or rack-mounted with internal antenna distribution), spectrum analyzing tools (coordination tools built into wireless receivers, Lectrosonics Wireless Designer and the Endian Freq. Finder app); I am forced to look at what I can drastically manipulate and/or change my habits with. I landed on the ‘Antennas!’ I find that antennas are a very overlooked, underrated, misused and extremely crucial set of tools in our production sound equipment arsenal. Since experimenting with various antenna systems for my sound carts and sound bags, antennas have become even more interesting to me now than ever—especially antennas on the receiving end of a wireless system. Our receiving antennas put us into an invisible range bubble that can drastically vary in size depending on your technique.

LANDSCAPE FOR CART-BASED SOUND MIXERS

Unlike installations, production sound mixers’ wireless use is a moving target. I love nothing more than to set up my sound cart on set in a central location where the actors, boom operators and video village is—but not so close to where I’m in the way of the cameras shifting spots or equipment loading in and out. I love nothing more but for this central spot to bring me impeccable wireless performance on both the transmitting and the receiving ends. I settle in, raise my antenna riser, scan for fresh frequencies and I know that whatever magic sorcery in play is working—and I get flawless wireless performance. I used to take it for granted that these tools function so well. However,
I have noticed a change in very recent years and even months. We read about the spectrum sell-offs, we read about the white space devices, we read about the fact that, as wireless microphone users, we’re all getting crammed and crowded into the same small spaces. Yet it doesn’t seem to resonate until we see our impeccable performance compromised as we scan for clear air in certain frequency bands and none are to be found. Then all of a sudden, the 100-yard throw that your wireless transmitter once had, has now been reduced to 15 feet with hits out of nowhere. Reality sets in and you realize that it’s happening. The party is over.

You have your FCC license, but what will that buy you? I would suggest if you don’t have one, get one. However, it is just a piece of paper that says the federal government is acknowledging that, as a professional user, you may transmit signals within a small slice of bandwidth at fairly low power with a specified number of wireless microphones. We’re not even asking for that much. We just want to be able to utilize high-quality wireless audio transmission at about the distance of a football field. We’re not transmitting high-bandwidth, high-power signals. It’s just audio. It’s tiny and it shows how valuable wireless air really is. It’s a fishable river on public land that you only want to catch a few trout from for your family fishing business, but the government would like to dam it and reap the profits from larger businesses. It’s a shame.

In a passive antenna system on a sound cart, getting those dipole, LPDA (Log Periodic Dipole Array), or helical antennas up high in the air is crucial. I’ve seen sound carts where antenna risers are only about six feet above ground and I’m always baffled by this. Countless times our own manufacturers have lectured us on this and we don’t always comply. When you learn your own bubble size and have real comparisons to go off of, you see that altitude is your friend.

This September, the Cinema Audio Society hosted a “Parade of Sound Carts” at the Production Sound Pavilion portion of Mix magazine’s “Sound for Film” event at Sony Studios (read about the event in this issue). It was an amazing display of sound carts from about a dozen sound mixers/comedians who hilariously teased me about the antenna riser height on my sound cart. It won the “height contest” since it raises to about 15 feet in the air. If I could find a cart-mountable light stand that extends higher, I would buy it. No joke! I have found a steep difference in performance since implementing this tall riser on my cart.

ANTENNAS IN THE SOUND BAG
This is tricky and an unsettled conundrum in a sector of our craft that is growing at an exponential rate. More users are appearing and practicing in this area of production sound than any other sector of our craft and are searching for viable antenna solutions. The Catch-22 is that half-wave antennas are not as useful in the bag as they are on the cart. The beauty of bag-based work is that, theoretically, you are inherently closer to the wireless transmitters on talent, the wireless receivers on cameras or clients and that large-scale antenna distribution systems or amplifications are not needed. So, the same antenna physics apply even if it seems like a good idea to have antenna distribution replace the quarter-wave whip antennas with external antennas mashed in with the sound bag. It appears to be convenient but it, unfortunately, often yields poor results. Antennas want to be set free-floating in the air!

When I see a distributed antenna path terminated into receiving antennas that are mashed alongside the sound bag or up against the user’s body, I imagine this range bubble getting smothered beyond recognition. You, the sound mixer with a sound bag, are essentially a sack of water. Then, with electronic components strapped to this sack of water spraying out additional RF energy. Not a great combination when hoping to have your antennas provide clean RF reception. Luckily, as mentioned (and this is a great example), our professional tools in the production sound arena are so effective that, often, their misuse goes unnoticed.

Here’s an acoustical comparison to this RF energy example: Imagine hugging an accordion player and then wondering why their music sounds muffled. Smothered. Range. Bubble. The solution? I’m not totally sure—yet. Possibly, a bag user mounts their antennas on a light stand riser as well? Not as portable in regard to a run-and-gun style of shooting. Okay, how about a selfie stick with antennas mounted on it? How about a helmet with a six-foot-tall antenna riser?
mounted to it? This seems like a good idea if you can find some super lightweight antennas. Either way, you MUST get these antennas away from yourself and the electronic, RF spraying equipment. What about some small dipoles? But they don't have the same gain offering as log periodic or helical antennas. A conundrum. Physics with wireless reception relies on metal, its mass, and its position in the air. But sound bag users do deserve a viable solution.

THE RANGE BUBBLE

Back to this moving target. After you clock a considerable amount of hours with your specific wireless system, you really start to learn this imaginary, three-dimensional bubble where you feel comfortable with your ability to receive the wireless transmitters both on the bodies of talent as well as mounted to the boom operators. The first factors that come to mind are the transmitter’s power. You may have a varying power output from each transmitter. Some of your transmitters may have the ability to be boosted up to a quarter-watt. Some are limited to 50 mW. Most are probably in between the two and set to 100 mW. Add to this, the fact that the talent transmitters are guaranteed to be placed in difficult spots: the ankle, thigh, or waist on the opposite side with the body of the performer blocking the transmitter’s “view” from the receiving antennas.

Here is an example of techniques that we have to break each and every day. The reason we break these rules in production sound is we have to be ninjas in regard to the camera. We’re in the business of selling illusions and those illusions can’t exist if we see transmitters placed in more ideal positions. Another factor in this range bubble is the position of the sound cart in regard to proximity to the transmitters, but also the proximity to concrete walls, metal mesh or caging, and low ceilings. What I find fascinating is what happens these days with the entire sound crew. The mixer, boom operator, and utility all end up learning, knowing, and implementing choices based on this bubble that we’ve learned. We know the limitations and what causes them and, as a team, we end up choosing the most ideal spot for the sound cart. Hopefully, you find a place that provides at least two of these three crucial elements: 1) It’s central. Maybe the center point of a 100-yard walk-and-talk. 2) It’s on high ground. The second floor of a residential location allowing you to “throw” the entire house. Or the high point of a park location where there are hills and the action of the scenes are down below at various points of the park. 3) A 15-foot-plus antenna height unobstructed by low ceilings. If none of these three options are possible, a fourth option is available—remote-ing your antennas.

This, more than anything, is the element that I believe we WILL be changing our habits in. I admit it, I avoid remote-ing my antennas. I enjoy the zero loss, minimal length, thick RG-8A (Belden 9913F7), passive technique I utilize on my sound cart. First, without talking about amplification, I want to also admit that I have broken the rules of line loss and ran a fifty-foot cable to remote antennas with NO amplification. I’m sure I took some loss in the cable, but the proximity of the antennas to the transmitters in these instances saved me. 50 feet is helpful if you’re just outside a window of a concrete building or pushed just outside the room where the set is. It can make the difference between having your antennas 15 feet away from the transmitters and having them over 50 feet away plus a concrete wall. So that 6 dB of loss through the cable doesn’t sound so bad now.

What about a 100-foot antenna cable run? This sounds more useful in regard to finding a tucked-away spot for your sound cart—yet still enjoying good antenna proximity. This is something that you must follow the rules with. I have seen firsthand the results of running 100 feet of antenna cable passively and they are not very good. On the flip side, as per lectures from our manufacturers, amplification, when unneeded, yields even worse results. If you overload the antenna input of a receiver, the range of your whole system is compromised to the point of potential unusable performance.

Now, a properly planned long antenna cable run with just the right amount of amplification can help bring your system
back to a wireless utopia. #nerdalert … With a 100-foot run of Belden 8240 (RG-8A/U) cable, you will experience almost 12 dB of loss. You could run 100 feet of Belden 9913F7 (that thick RG-8 cable) and you would possibly not need much amplification if any at all. Maybe +4 dB if you wanted. But with Belden 8240, this cable is thin enough for temporary remote runs that are practical for production sound (non-installation) use. Just add 12 dB of gain at either your active antenna’s amplifier or an in-line amplifier. This could feel like a return to the old days when you’d want to get that VHF antenna for your Vega wireless right on the frame line! That was a dark time for wireless in production sound and I don’t see its permanent return. I don’t feel like we need to finesse our habits that far. This becomes one more thing to throw at our boom operator and utility personnel who already have their hands full as a result of the large number of wireless microphones in production. But with a little closer proximity antenna placement, high transmitter power becomes less of a needed element. Reducing your transmitter’s power output has several advantages, including avoiding intermodulation and transmitter heat generation. If this finessed placement becomes standard practice, I think our performance expectations can return to what we deserve—despite the unfortunate coming RF crunch.

**THE 50 MILLIWATT QUESTION**

Unlike live theatre applications, where 50 mW transmission is the norm, TV and film production sound applications have had a tool at our disposal for increasing transmitter power to the maximum of quarter-watt. Sometimes this helps us “squeak out” just enough range from a transmitter to pull off a scene where either long distance or an unclean frequency are the challenging factors of reception. But, what if the maximum we are allowed to utilize is a 50 mW transmission on body pack and boom transmitters? How will this affect our antenna placement choices? I don’t know if this would ever be a legislated limitation, but I think we should safely assume that it could be. As a user of some transmitters that are limited to 50 mW, I can attest to the fact that the way to make these work to our expectations is with a fairly close range and clear air. If those two things are not guaranteed, antenna placement must compensate for the lack of close range. This is where these remote antenna techniques may come in handy.

**PRODUCT OPTIONS**

Here are some of the antennas that I’m familiar with that are widely available for purchase for production sound mixers: Lectrosonics ALP620 Log Periodic Dipole Arrays, Zaxcom Bluefin Log Periodic Dipole Arrays with a cardioid directivity, RF Venue Diversity Fin with a cardioid LPDA and omnidirectional dipole in the same unit, Lectrosonics SNA 600a dipoles, Wisycom ADN-ADB, Shure UA860SWB omnidirectional antennas. Also, Sennheiser A5000CP, Professional Wireless HA8089, and the RF Venue CP Beam (which are all helical antennas). Powered options that I know of include: The Lectrosonics ALP 650, Wisycom LNNA, Besto Sharkies, and PSC Powerpaddles. All have active antennas with amplifiers located on the antennas themselves. These come in very handy when you have that 100-foot run and need to compensate for the loss incurred from the cable length. Even more handy is the Besto, Wisycom, and PSC units which have variable amplification—adjustable on the antenna amplifier itself. This allows a variety of antenna cables and lengths as well as attenuation when needed. All of these are great tools but what are we missing?

**WISH LIST**

I would love an extremely robust system that would allow the patching of multiple RF signals of both receiving antennas and transmitting antennas into a digital, battery-powered balun that would utilize fiber optics to allow these signals to travel down one extremely lengthy (500-1000 foot?) line. I also feel we are lacking good options for new VHF antennas, where a certain amount of metal needs to be used to construct these in order to work and have increased gain. But I
do think we are also in need of a lighter weight, as-small-as-possible VHF omnidirectional dipole or Log Periodic Dipole Array antenna for both transmitting and receiving purposes. And, of course, some sort of extremely lightweight, small half-wave directional UHF antenna that would be practical for handheld, bag, and run-and-gun use.

I hope those with actual engineering training have been dreaming this stuff up as well. In the meantime, I will close with: On the surface, antennas are not the most interesting component to discuss, but they hold immense power to a well-functioning wireless system (or sorcery). Our useable bands for wireless microphones are shrinking and overcrowding. With proper antenna choice and a little antenna placement elbow grease, the future can still look bright.
Roger Pietschmann

Production Mixer and Third Generation in Motion Pictures

Roger Jay Pietschmann died peacefully at home July 26, 2016, in Los Angeles with his family at his side after a six-year battle with multiple symptom atrophy (MSA) at age 71. Throughout his illness, he never lost his wonderful take on life and sense of humor. He was the third generation of family employed in the motion picture industry. Like his father before him, he was a boom operator, sound recordist, and mixer. His career began with Martin Scorsese’s acclaimed *Taxi Driver*. Among his numerous feature film credits are *Batman Returns*, *Honey, I Blew up the Kid*, *Pee-wee’s Big Adventure*, and *Twilight Zone: The Movie*. Pietschmann worked on many television series, specials, documentaries, and news programs, including *Nature*, *60 Minutes*, *American Masters*, *Family Law*, *The Division*, *Airline*, *Dirt*, *Sleeper Cell*, and *Dexter*.

He received a Primetime Emmy nomination for *Sleeper Cell* and was nominated for the Cinema Audio Society’s Outstanding Achievement in Sound Mixing for *Sleeper Cell* and *Dexter*. He received recognition for his contributions to Emmy Award-winning shows from the Academy of Television Arts & Sciences. Roger Pietschmann’s father, Richard J. Pietschmann Jr., is credited with helping create the milestone multitrack stereophonic sound system for Cinerama and was recordist and mixer for four of those landmark widescreen movies, including *This Is Cinerama*. His grandfather, Richard J. Pietschmann Sr., was employed in set lighting during the early days of the motion picture industry on both coasts. Roger graduated from University High School in Los Angeles and attended Santa Monica Community College and the California State University in Long Beach. He is survived by his wife Andrea, daughter Devin, and brother Richard J. Pietschmann III. His family would like to acknowledge Roger’s strength throughout his long fight against a terrible degenerative neurological disease. His daughter Devin has set up a funding site for contributions used to better understand and defeat MSA. His family requests that donations be made in his name at https://myevent.com/defeatMSA

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Eric Justen

Re-Recording Mixer

Eric Justen, an Emmy and CAS Award-nominated sound effects re-recording mixer, passed away unexpectedly in August. He was talented and loved by his peers and clients—having worked on *The Good Wife*, *Numbers*, and all five seasons of *Breaking Bad*. He shared his talents at many facilities, including Warner Bros., Widget Post, EFX, and more. Our hearts and prayers go out to his family.
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Karol Urban CAS MPSE is mixing Grey’s Anatomy Season 13 with Gary DeLeone, as well as Notorious with Ross Davis at Westwind Media.

Devendra Cleary CAS, joined by boom operators Josh Bower and Tanya Peel, completed Season 3 of Murder in the First for TNT. Sadly, this show will not be returning for Season 4, but we will get that band back together on another project soon! In the meantime, Scott LaRue has joined the team with Tanya Peel and myself on Season 3 of The Last Man on Earth for 20th Century Fox TV. We are having a blast with this amazing group of talented people. The usual two booms and lot of wireless, with the not-so-usual for single camera: Fisher boom working on our main set.

Greg P. Russell CAS and Tom Marks CAS recently finished the mix for Scott Waugh’s latest film, 6 Below, on Stage 1 at Technicolor.

At Smart Post Sound, Sherry Klein CAS and Lisle Engle are working on Falling Water for USA and Bull for CBS. Next up is the second season of Flaked for Netflix, mixing at Roundabout.

Brett Grant-Grierson CAS is wrapping up another great year having been on some fun shows. On Longmire in New Mexico, Brett worked with boom op Chris Diamond and local utility Daniel Carlton. These guys made a tough show a pleasure and made the daily challenges into a fun collaboration. On Scream Queens for Fox TV, another fun project, Brett worked with boom operator Josh Bower and utility Chris Silverman on the Paramount Lot.

A lot has been happening at the new stages at Soundlake Audio Services at Roundabout Entertainment. Keith Rogers CAS and Scott Weber have had a busy summer/fall mixing HBO’s Westworld, Season 3 of AMC’s Halt and Catch Fire, as well as The Exorcist for Fox and Frequency for WB/CW.

Aron Siegel CAS wrapped Season 3 of AMC’s Halt and Catch Fire with boom op CAS Associate Allen Williams and sound utility Matt Derber in July. While Allen joined The Walking Dead sound crew in mid-July, Aron and Matt went on to start Season 1 of FOX TV’s 24: Legacy in early September with Matt moving to boom and Nik Waddell working the show as utility. It will begin airing February 2017 after the Super Bowl.

Jürg von Allmen CAS is mixing the fifth season of the most successful Swiss crime series of all time, The Undertaker, at Digiton Zürich. In November, Jürg will mix Secrets of the Yeniche Music, directed by Martina Rieder and Karoline Arn. The film highlights the roots of the Yeniche music in Switzerland and the scandal of their suffering under a program that removed almost 600 children from their parents and institutionalized them in orphanages, mental institutions, and prisons.

At Santisound, Rick Santizo CAS mixed The Icarus Line Must Die, which is headed to the festival circuit. Directed by Michael Grodnit, it’s a fictional film about Highland Park band Icarus Line. Michael Malerba MPSE finished eight episodes of Oscar Mike, a show dedicated to veterans and their post-war careers, debuting on go90 from Verizon. ADR has also kept Santisound busy, including five episodes of Tig Notaro’s One Mississippi on Amazon. Next up, Rick will be mixing the film Nathan’s Kingdom, which features an autistic lead actor. It’s an imaginative, coming-of-age drama that explores the world through Nathan’s imagination.

Some recent projects that Woody Woodhall CAS has been supervising sound editing and re-recording mixing—the first season of Ozzy & Jack’s World Detour for the History Channel, following history buff/rock star Ozzy Osbourne and his son Jack, as they explore Cuba, Japan, Stonehenge and much more; the first season of Hollywood & Football for E! Network, following players on the Rams football team as they transition to Los Angeles from St. Louis, as well as the first season of Ink, Paper, Scissors for BET. He has also posted two feature documentaries, After Auschwitz, following six female Holocaust survivors, as they made the transition from the camps to making new lives and ultimately, generations of new families in California, and also Hitchhiking to the Edge of Sanity, which revisits a trip taken by two journalists when they were young men in 1970, hitchhiking a 2,700-mile trip through Europe, Africa, and ultimately, across the Sahara Desert. He is also the supervising sound editor and re-recording mixer for the indie feature Wish for Christmas, a family-friendly Christmas film that was picked up by Universal and will be streaming online through the holidays.

In addition to his production sound career—James Ridgley CAS will be directing his first feature film, starting in November, from a script he wrote. James is extremely excited and happy to announce that the brilliant Academy Award nominee and Golden Globe winning-actress Sally Kirkland will be in the lead role.

Steven A. Morrow CAS has just wrapped up the first six episodes of G.L.O.W. for Netflix. Craig Dollinger (boom) and Michael Kaleta (utility) will round out the team for their next feature, called Abyrinth, shooting in Los Angeles. The three are very excited to watch La La Land in theaters this December, as they had a great time making the film.

Scott D. Smith CAS and his crew Jason Johnston (boom) and Michael Capulli CAS (utility) continue to forge ahead on Season 4 of Chicago P.D. for Dick Wolf Productions, with capable assistance from Dave Thomas, Kelsey Zeigler, Patrick Bresnahan, Sharon Frye, and Juliana Armbrust. They are also pleased to have Corey Capelli join them this season as key intern, helping to wrangle the endless array of Comteks, slates, IFBs, and other other equipment.

With six other productions working out of the same facility at the Cinespace Studio lot, it has made for a challenging situation in regards to RF coordination, but despite the odds, they have managed to make it work for all.

It has been a busy fall for Gavin Fernandes CAS. Versailles Season 2 is finishing off for Ovation/Canal+. HBO Big Little Lies is well underway, and Ben Cop, Bad Cop 2 starts early in the year.

Brendan Beebe CAS just finished American Horror Story Season 6, where they went into “Reality Mode.” Both camera operators and Brendan were incorporated into the show, falling victim to “The Butcher.” Brendan appreciates the work by
Both Dennis Fuller and Sean Byrnes. Next up, the second half of G.L.O.W. for Netflix.

Frank Morrone CAS and Scott Shepherd wrapped the mix for The Headhunter's Calling, starring Gerard Butler, Willem Dafoe and Alison Brie, which premiered at TIFF this year. Frank Morrone and Ken Burton CAS are mixing Criminal Minds and Criminal Minds: Beyond Borders on Stage Six at Westwind.

Robert Sharman CAS enjoyed the summer with his longtime friends, boom operator Richard Bullock and utility Tanya Peel, working on Annabelle 2 for New Line on the WB lot. Robert joined Steve Morrow CAS on Insidious: Chapter 4, along with Jeff Blehr booming and Michael Kaleta as third. He’s now gearing up to start Counterpart for Starz, with another great team of old friends, Dennis Fuller and James Eric.

Philip Perkins CAS had four premieres at film festivals this summer: Company Town, Paying the Price for Peace, and Ethel (re-recording mixer), as well as The Groove Is Not Trivial (concert recording). All are PBS-bound. The science podcast series Two Scientists Walk Into a Bar, which he recorded and mixed, went “live” in October. He has a new CD of sound works out on the Fun Music label: It Gets the Corners.

John Pritchett CAS and boom Dave Roberts spent much of the last two years doing TV productions, most notably the second season of HBO’s The Leftovers for Mimi Leder. It was a truly amazing experience and the opportunity to work on a personal favorite show for John. Now, they are about to finish Jumanji for director Jake Kasdan and have been filming in the jungles of Hawaii and the streets of Atlanta. Immediately after that wraps, they will begin work on the next two “episodes” of The Avengers.

David Barr-Yaffe CAS is currently mixing Season 2 of The CW’s one-hour musical comedy, Crazy Ex-Girlfriend, with Aaron Grice and Kelly Ambrow on the stix. Special thanks goes to Jeff “Z” Zimmerman for his relief-pitcher appearances at the Pro Tools plate.

NBCUniversal is getting many outstanding soundtracks from CAS members this season:

John Cook CAS and Bill Freesh CAS are staying busy as always on Mix Stage A, working on shows like Last Man Standing for ABC, Brooklyn Nine-Nine for Fox, and The Good Place, Issues, and Superstore for NBCUniversal. They recently finished mixing the USA Network phenomenon, Mr. Robot, and HBO’s VEEP, which they were nominated for an Emmy for both shows.

Nello Torri CAS and Alan Decker CAS are no strangers to a full plate. On Mix Stage B, they are tackling the final season of Grimm, as well as Taken and Emerald City for NBC, Bates Motel for A&E, Homeland for Showtime, and Patriot for Amazon. This talented team just finished the show Shots Fired for Fox, a show that touches on current relevant issues.

Pete Reale and Todd Morrissey CAS have begun mixing NBC’s Chicago Fire and Chicago P.D., both now in their fifth season. These two shows keep Pete and Todd busy on Mix Stage C!

Greg Watkins CAS and Derek Marcil CAS are the newest team to join the NBC Universal StudioPost team, and the studio couldn’t be more excited to have them on Mix Stage G! Greg and Derek are currently mixing both Chicago Medical and Law & Order: SVU for creator Dick Wolf and NBCUniversal.

Mark Fleming CAS and Rob Carr CAS are busy on Mix 1 mixing Agents of S.H.I.E.L.D. for Marvel, now in its fourth season. The team is also mixing Channel Zero for the Syfy channel. The beginning of 2017 will bring the next season of 12 Monkeys, another Syfy series, back to the stage.

Fresh from their Emmy win on Game of Thrones, Onnalee Blank CAS and Matt Waters CAS have started the final season of Black Sails for Starz Entertainment, mixing in Dolby Atmos on Mix 2 at NBCUniversal. Up next for the team is Girls for HBO.

Pete Nusbaum CAS and Whitney Purple are back in the swing of things in Mix 5 at NBCUniversal, mixing Blackish for ABC and The Mindy Project, airing on Hulu, Great News for NBC, Just Add Magic for Amazon, and Best Friends Whenever for the Disney channel.

Jon Taylor CAS and Frankie Montañó CAS are staying busy as usual in the Hitchcock Theater, recently finishing the film Star Trek Beyond. The next film they will be mixing is Fifty Shades Darker, the second installment of the franchise. After that, these talented mixers move onto the eighth installment of the ever popular Fast & Furious.

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Kathy Bates as “The Butcher” on American Horror Story Season 6 on Hollywood Boulevard with Steven A. Morrow CAS, Dennis Fuller, and Sean Byrnes.

Left to right: Steven A. Morrow CAS, Craig Dollinger (boom), and Michael Kaleta (utility) working on the 105 freeway for the opening musical scene of La La Land.

Scott Harber CAS, David Fiske Raymond, and Erik Altstadt are having great fun moving around LA for the Amazon show Bosch.

Boom operator Scott LaRue working the Fisher boom Model 2 with Model 3 base on the Fox comedy The Last Man on Earth.

Our baby is growing up. Kaylee Litao Marshall, daughter of Paul Vik Marshall CAS and Aletha B. Rodgers CAS, playing saxophone with the Keys Elementary School Band in Park Hill, OK. Go Cougars!

Tanya Peel, Richard Bullock, and Robert Sharman CAS on Annabelle 2.

Bartek Swiatek CAS is on the set of Last Chance U, with Alex Auvenshine and Christopher Fleeger. It is day 66.
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