Career Achievement Award Recipient

William B. Kaplan CAS

CAS Filmmaker Award Recipient

George Clooney

Overcoming Atmos Anxiety • Playing Well with Other Departments • RF in the 21st Century
Remote Mixing in the Time of COVID • Return to the Golden Age of Booming
Sound Ergonomics for a Long Career • The Evolution of Noise Reduction
CINEMA AUDIO SOCIETY AWARDS NOMINEE

MOTION PICTURE - LIVE ACTION

PRODUCTION MIXER – DREW KUNIN
RE-RECORDING MIXERS – REN KLYCE, DAVID PARKER, NATHAN NANCE
SCORING MIXER – ALAN MEYERSON, CAS
ADR MIXER – CHARLEEN RICHARDS-STEVEES
Foley MIXER – SCOTT CURTIS

★★★★★
THE FILM LOOKS AND SOUNDS GORGEOUS.”
THE GUARDIAN

“A WORK OF DAZZLING CRAFTSMANSHIP.”
THE HOLLYWOOD REPORTER

“A stunning and technically marvelous portrait of Golden Era Hollywood that boasts MASTERFUL SOUND DESIGN.”
MIRROR
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CAS QUARTERLY
SPRING 2021

CAS QUARTERLY
SPRING 2021

CINEMA AUDIO SOCIETY

CAREER ACHIEVEMENT AWARD RECIPIENT WILLIAM B. KAPLAN CAS | 20

Cover: Career Achievement Award recipient William B. Kaplan CAS
Dear Members,

It is officially awards season!
And after a socially distanced year, I couldn’t be more excited about the opportunity to celebrate the incredible mix work of 2020 at the 57th CAS Awards.

Your Board and awards crew are creating an extraordinary virtual event experience befitting of the excellent work that has risen from the ashes of 2020. We are prioritizing as much interactivity and live energy as possible.

We will be presenting from a few locations where mixing magic is made and featuring live acceptance speeches! A general chat will be available during the awards, as well as a downloadable program book and highlights from our generous sponsors.

Our Career Achievement Award recipient will be the inspirational William B. Kaplan CAS. Kaplan has an enviable career filled with superlative work collaborating with legendary filmmakers such as Robert Zemeckis and Tony Scott. He offers great insight and wisdom in this edition of *CAS Quarterly*.

Our CAS Filmmaker Award honoree will be the talented George Clooney. George embodies a strength of character that not only shows in the integrity and preeminence of his works, but also in the way he regards and is regarded by his creative teams and associates. In such a time of uncertainty, his hardworking, innovative, and generous demeanor and body of exceptional films and television projects makes him an especially exemplary filmmaker for 2020.

Following our awards, we will be hosting a networking reception for all attendees, featuring video chat capabilities with individuals or small groups of your choice as you move about our virtual ballroom.

You can purchase tickets to the 57th CAS Awards, taking place on April 17, 2021, from our webpage at www.cinemaaudiosociety.org/57th-cas-awards-tickets now! The cost for attendance to this virtual event is only $50 a virtual seat. A portion of ticket proceeds will be donated to The House Institute, Motion Picture Television Fund, and World Central Kitchen.

Final voting begins March 25! Please contact the office at CASOffice@CinemaAudioSociety.org if you are having trouble locating your ballot.

Even amidst the challenges of last year, you will find the nominees of 2020 to be as impressive as those from previous years. What has manifested is truly beautiful! It will make you proud. Please take the time to enjoy the work of your peers.

On your Board and in your executive team, we are always searching for new ways to serve our industry and membership. Let us know what would be of great value to you.

Please direct correspondence to CASPresident@CinemaAudioSociety.org or CASOffice@CinemaAudioSociety.org.

In gratitude,

Karol Urban CAS MPSE
“TERRIFIC SOUND DESIGN”

FOR YOUR CONSIDERATION

MOTION PICTURE - LIVE ACTION

PRODUCTION MIXER: DAVID WYMAN, CAS
RE-RECORDING MIXER: MICHAEL MINKLER, CAS
RE-RECORDING MIXER: CHRISTIAN MINKLER, CAS
RE-RECORDING MIXER: RICHARD KITTING
RE-RECORDING MIXER: BEAU BORDERS, CAS
SCORING MIXER: GREG HAYES
FOLEY MIXER: GEORGE A. LARA, CAS

GREYHOUND

fyC | apple tv+
While the timeline has shifted, this is still an exciting time of year for us as we gear up for the 57th Annual CAS Awards. The nominees have been announced and final voting begins on Thursday, March 25—so be sure to vote! Along with celebrating achievements in mixing, we are excited to honor our Career Achievement Award recipient, production mixer William B. Kaplan CAS. Adam Howell CAS sits down with Bill to discuss his incredible and adventurous career, which, in my opinion, could be made into a movie itself. Along with celebrating Mr. Kaplan, we are thrilled to be honoring this year’s Filmmaker Award recipient, multi-hyphenate George Clooney!

In addition to reading about our honorees, your CAS colleagues have provided some great content for you to peruse. For those broadcast/TV re-recording mixers who haven’t stepped into the Dolby Atmos realm yet, Bob Bronow CAS speaks with some mixers to share insights in his article “Overcoming Atmos Anxiety,” while Patrick Spain CAS checks in to see how a couple re-recording mixers—and a show producer—are dealing with remote mixing during COVID. On the production side, Lori Dovi CAS reports in on her experience working on—a wait for it—a boom only show! Peter Kurland CAS provides insight on successfully working with other departments on set—a skill in its own right. G. John Garrett CAS discusses modern RF considerations and concerns while CAS Associate Sam Casas walks us through the history of noise reduction. Finally, a topic of great importance that is often overlooked; your physical health while working, CAS Associate Bryan Cahill and physical therapist, Dr. Elliot Smithson, provide some excellent advice, suggestions, and diagrams in their article “Sound Ergonomics for a Long Career.” And, as always, be sure to read about the happenings of your fellow members in the “Been There Done That” and “The Lighter Side” sections.

Thanks goes to all of our contributors for volunteering their time to share their insights with us. Also, know that our sponsors are professionals like you who understand the business and the needs of our industry—even during these really crazy times. We encourage your commitment to them. Thanks for taking the time to check out this issue. If an article makes you think of a friend or colleague, send a link to the online version of the Quarterly, available on the CAS website. Finally, feel free to reach out to us at CASQuarterly@CinemaAudioSociety.org.

Stay well and I hope to see you (virtually!) at the CAS Awards.

Matt Foglia CAS
UNIVERSAL PICTURES AND DREAMWORKS ANIMATION
THANK THE MEMBERS OF THE
CINEMA AUDIO SOCIETY

AND PROUDLY CONGRATULATE OUR CAS AWARDS NOMINEES

NEWS OF THE WORLD
MOTION PICTURE – LIVE ACTION

PRODUCTION MIXER – JOHN PATRICK PRITCHETT CAS
RE-RECORDING MIXER – MIKE PRESTWOOD SMITH
RE-RECORDING MIXER – WILLIAM MILLER
SCORING MIXER – SHAWN MURPHY
ADR MIXER – MARK DE SIMONE CAS
FOLEY MIXER – ADAM FIL MÉNDEZ CAS

THE CROODS: A NEW AGE
MOTION PICTURE – ANIMATED

ORIGINAL DIALOGUE MIXER – TIGHE SHELDON
RE-RECORDING MIXER – CHRISTOPHER SCARABOSIO CAS
RE-RECORDING MIXER – LEFF LEFFERTS
SCORING MIXER – ALAN MEYERSON CAS
FOLEY MIXER – RICHARD DUARTE
FOLEY MIXER – SCOTT CURTIS

TROLLS WORLD TOUR
MOTION PICTURE – ANIMATED

ORIGINAL DIALOGUE MIXER – TIGHE SHELDON
RE-RECORDING MIXER – SCOTT MILLAN CAS
RE-RECORDING MIXER – PAUL HACKNER
SCORING MIXER – CHRISTOPHER FOGEL CAS
FOLEY MIXER – RANDY K. SINGER CAS
Bob Bronow CAS is a re-recording mixer and sound designer working in television and documentary film for more than 20 years. In addition to mixing 12 seasons of Deadliest Catch, his credits include ABC’s The Family, As Men, Storage Wars, The Colony, 1000 Ways to Die, American Masters: Carol Burnett & Bob Newhart, and the feature documentary The Wrecking Crew. He’s received 14 Primetime Emmy nominations with three wins in addition to four CAS Award wins and two MPSE Golden Reels. Bob has served many terms on the Sound Peer Group Executive Committee and the Board of Directors for the Cinema Audio Society.

CAS Associate member Bryan Cahill began his production sound career in 1989 as the mixer on a documentary shot in Mexico, featuring President Jimmy Carter. He currently works as an instructor and production sound administrator at Loyola Marymount University. Bryan also serves as the Chair of the Injury Prevention Committee at I.A.T.S.E. Local 695.

CAS Associate member Sam Casas After graduating from UCSD’s Revelle College as a music technology major in 1999, Sam began his career in audio post-production in the tape vault at POP Sound in Santa Monica. In 2003, he helped open Lime Studios, a boutique audio facility specializing in sound design and mix for TV commercials, where he still works today. Sam has found a successful niche mixing commercials for huge brands such as Nike, Facebook, Old Spice, and Apple, counting several Super Bowl commercials as career highlights. In 2017, Sam joined the union and began actively pursuing more narrative work as a supervising sound editor and re-recording mixer on various independent features, shorts, and documentaries. Working on a major studio feature or limited series is Sam’s next career goal. Sam’s 5.1 home studio has enabled him to stay busy during the pandemic while allowing him to spend more time with his wife Elise and 4-year-old son Sebastian.
in documentary sound and earned more than 100 BBC credits. Lori went onto mixing scripted shows over the past 25 years, working with directors David Fincher, David Ayer, Zoe Lister Jones, Marc Webb, Craig Gillespie, Gina Rodriguez, and Tom Ford to name a few. She is a member of IA 16, 695, and CAS. In 2018, Lori founded International Women Working in Film, an initiative to help women advance economically in film & TV. She appears in the Focal Press book Women in Audio by Leslie Gaston-Bird. Lori currently lives in West Hollywood and loves Los Angeles!

G. John Garrett CAS is a production sound mixer living in Boston, MA. He began mixing live music around 1970 and learned acoustics, signal flow, and recording technology along the way. He began in the industry booming for Boulder mixer Garrett Collenberger and moved into mixing documentaries, commercials, and feature films after moving to Boston in 1984. He then expanded his RF training by working with broadcast engineers and now also consults with a broadcast tech company in the area.

Adam Howell CAS In 2002, Adam Howell CAS moved to LA after graduating from Full Sail with a recording engineer degree. Beginning at Hans Zimmer’s studio and working in the music industry, Adam ventured into post-production for television as a sound editor and took his skills into the field as a production mixer in 2004. For more than 15 years, Adam has enjoyed the privilege of mixing and supervising more than 100 shows for clients as diverse as MTV, FOX, and ABC. Delivering the best audio is Adam’s passion and he feels fortunate to work with so many talented and creative individuals. He also enjoys playing guitar, hiking, traveling, and hanging out with family.

Patrick Spain CAS began his career in the scoring world at Signet Sound in 2001 working on varied films like Cars and Eternal Sunshine of the Spotless Mind. In 2006, he was hired at the venerable Ocean Way Recording (now renamed United Recording), this time working on everything from Dr. Dre productions to John Mayer records to the score for Avatar. In 2011, Patrick was hired as a mix tech at the industry-leading Todd-AO Lantana Stages in Santa Monica. His very first day there was an FX playback of a single reel of Avengers for director Joss Whedon on the same stage where Saving Private Ryan was mixed. It was in this incredible environment where Patrick learned the ropes of film and television audio post from some of the best re-recording mixers, editors, and sound supervisors in the world. He worked on shows as different as the run-and-gun feature Lone Survivor to HBO’s Girls to the music-centric hit Nashville. After the closing of Todd-AO, Patrick worked a quick stint at Technicolor Sound Services, and then made the jump to freelancing as a re-recording mixer full time. In that time, Patrick has mixed for clients such as Netflix, Disney, WB, ABC, and DreamWorks.

Adam Howell CAS

Dr. Elliot Smithson

DPT, PT, ATC, EMT-B is a physical therapist/athletic trainer with a background in sports medicine and performing arts medicine. Through his career, he has worked for major organizations such as University of Central Florida, Marshall University, Walt Disney World Entertainment, Live Nation Entertainment, and currently with Counter Logic Gaming as player performance and eSports medicine, as well as a head physical therapist at California Rehabilitation and Sports Therapy in Beverly Hills. His private company, Performance X Medicine, is available to deliver concierge physical therapy and injury prevention services directly to the home, office, or set. More information can be found at www.performanceXmedicine.com
entertainment Industry Professionals Mentoring Alliance (EIPMA), formed out of the desire of the Motion Picture Sound Editors to honor Paul Rodriguez MPSE, former longtime Board member of the MPSE, who helped and mentored so many entering into the world of sound post-production, and provides expert guidance to young people seeking meaningful and productive careers in the entertainment industry.

On March 20, EIPMA is hosting a panel specifically on sound, “Careers in Sound.” Panelists will include representatives from many of the EIPMA member organizations, including the Cinema Audio Society, Motion Picture Sound Editors, Sound Girls, and others. This is the beginning of panels that will focus on different career paths in our industry. Look for panels on Music, Picture Editing, Engineering, Visual Effects, Cinematography, and more.

We are forming a membership structure that will connect EIPMA with students, graduates, educational institutions, and entertainment companies through a newsletter and new events we hope to present in the near future. Be a part of our mission to help future diverse talent from around the world enter into our industry and find success. We appreciate your support and encourage you to visit us at: www.EIPMA.org

THE CAS STUDENT RECOGNITION AWARD FINALISTS ARE:

ANNA CASSADY
University of Southern California – Los Angeles, CA

LINDSEY ELLIS
Chapman University – Orange, CA

BRANDYN JOHNSON
University of Southern California – Los Angeles, CA

YAN “CAROL” LI
School of Visual Arts – New York, NY

VANDANA RAMAKRISHNA
Annapurna College of Film and Media – Hyderabad, India

In response to the challenges of COVID and our desire to come together safely to celebrate the incredible achievements of 2020, your Board of Directors is pleased to offer a unique virtual awards experience this year for the cost of $50 a virtual seat.

The event will feature text chat with other guests, live acceptance speeches, a virtual “red carpet” wall shown in-program, and an interactive reception that will allow you to move through the room and mingle in small groups using video chat.

A portion of our ticket proceeds will be donated to three of our favorite charities: The House Institute, Motion Picture Television Fund, and World Central Kitchen.

Please visit our registration page to purchase your tickets NOW to the 57th CAS Awards!
www.cinemaaudiosociety.org/57th-cas-awards-tickets
For Your Consideration in All Categories Including

Best Picture
Best Director
Chloé Zhao
Best Sound
Sergio Diaz,
Supervising Sound Editor/Sound Designer/Additional Re-Recording Mixer
Zach Seivers,
Supervising Sound Editor/Re-Recording Mixer
M. Wolf Snyder,
Production Sound Mixer

“The Best Film of the Year – a New Kind of Cinematic Classic.”
Leah Greenblatt, Entertainment

WINNER! GOLDEN GLOBE® AWARD
BEST PICTURE
BEST DIRECTOR
Chloé Zhao

6 CRITICS CHOICE AWARDS NOMINATIONS INCLUDING
BEST PICTURE
BEST DIRECTOR
Chloé Zhao

MOTION PICTURE SOUND EDITORS NOMINATION
BEST SOUND EDITING
FEATURE DIALOGUE/ADR

WINNER GOLDEN LION BEST FILM
VENICE FILM FESTIVAL

WINNER PEOPLE'S CHOICE AWARD
tiff

NOMADLAND
A FILM BY CHLOÉ ZHAO
ANNOUNCEMENTS

CAS AWARDS COVID-19 TIMELINE ADJUSTMENTS

As a result of the industry shifts resulting from the pandemic, the 57th Annual CAS Awards timeline will be adjusted for this year. We look forward to celebrating with the recipient of the CAS Career Achievement Award, William B. Kaplan CAS, and the CAS Filmmaker Award honoree, George Clooney. The CAS Awards recognize Outstanding Sound Mixing in Film and Television, along with Outstanding Products in Production and Post-Production and the CAS Student Recognition Award recipient. We also look forward to welcoming the new 2021 CAS Board members.

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ENTRY SUBMISSION FORM AVAILABLE ONLINE ON THE CAS WEBSITE AT www.cinemaaudiosociety.org TUESDAY, DECEMBER 8, 2020

ENTRY SUBMISSIONS DUE ONLINE BY 5 P.M. PT, TUESDAY, JANUARY 19, 2021

Nomination Ballot Voting Begins Online Thursday, February 11, 2021

Nomination Ballot Voting Ends Online 5 p.m. PT, WEDNESDAY, FEBRUARY 24, 2021

Final Nominees in each category announced Tuesday, March 2, 2021

Final Voting Begins Online Thursday, March 25, 2021

Final Voting Ends Online 5 p.m. PT, Tuesday, April 6, 2021

57th Annual CAS Awards Saturday, April 17, 2021, Los Angeles, California

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SUPPORT THE SOUND CREDIT INITIATIVE

The Cinema Audio Society, together with the Motion Picture Sound Editors (MPSE), and Association of Motion Picture Sound (AMPS), has launched the next step in their Sound Credit Initiative. The organizations behind the Sound Credit Initiative have been overwhelmed by the private emails supporting this initiative. They determined that an online petition where sound professionals, colleagues, and friends can show their support should be the next step in this recognition process. To show your support visit: http://soundcreditinitiative.org

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Podcast

The Cinema Audio Society presents the next episode of our podcast series, In Conversation.

Moderated by Stephen A. Tibbo CAS, episode five features longtime CAS member, re-recording mixer Peter Reale CAS. This podcast was recorded in Los Angeles at Tibbo Sound in July 2020 during the COVID-19 pandemic.

http://cinemaaudiosociety.org/podcasts/

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FOLLOW THE CAS ON SOCIAL MEDIA

Stay up to date on the latest CAS news, events, and exclusive offerings. Be sure to check your email inboxes and follow the CAS on Twitter, Facebook, and Instagram.
“A technical triumph of filmmaking, with groundbreaking sound design and a pitch-perfect musical score. Riz Ahmed is astonishing. It is one of the outstanding performances of this or any year”

DEADLINE

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BEST PICTURE

BEST SOUND

Phillip Bladh
Sound Mixer

Nicolas Becker
Sound Supervisor/Sound Editor/Sound Designer

Carolina Santana
Sound/Music Editor

Jaime Baksht • Michelle Couttolenc • Carlos Cortés
Re-Recording Mixers

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CINEMA AUDIO SOCIETY AWARDS

BEST SOUND
TELEVISION SERIES 1/2 HOUR

Chapter 2: The Child
Production Mixer Shawn Holden CAS \ Re-Recording Mixer Bonnie Wild
Re-Recording Mixer Stephen Urata \ Scoring Mixer Christopher Vogel CAS
ADR Mixer Matthew Wood \ Foley Mixer Blake Collins CAS

Chapter 13: The Jedi
Production Mixer Shawn Holden CAS \ Re-Recording Mixer Stephen Urata
Re-Recording Mixer Bonnie Wild \ Scoring Mixer Christopher Vogel CAS
ADR Mixer Matthew Wood \ Foley Mixer Jason Butler
As a mixer working primarily in commercials for the last 17 years, my first personal introduction into noise reduction was with the Waves X-Noise plugin sometime around 2004. Initially, I had no idea how to use it properly, and most of the time, the audio I was treating sounded like an underwater mp3 downloaded from Napster. I guess I could have read the manual? After a lot of practice and with the desire to experiment with every noise-reduction tool I could get my hands on, I eventually found the right balance and began to understand the possibilities and limitations of the technology. It is easy to take for granted just how much control we have these days, but how did we get here? Join me as I delve into the history and fascinating world of noise reduction.

While researching, it seemed the more information I came across, the more questions came up. The term “noise reduction” is somewhat ubiquitous. Depending on the context, the term can mean several different things. After finding myself in an endless Wikipedia loop, I knew I needed to find an authority to educate me. Thankfully, Gordon Reid, the managing director at CEDAR Audio, with more than 30 years at the company, was very generous with his time and knowledge.

WHAT EXACTLY IS NOISE?

As humans, we can identify noise as something unpleasant, loud, or disruptive. While working in audio, we generally have a sound that we want to hear, and anything else is often described simply as “noise.” As recording mediums in the analog world evolved from wax cylinders to magnetic tape, a prominent noise was introduced in the form of “Hiss.” In fact, all recorded media has a noise floor which is the sum of all noise sources and unwanted signals. Some of it presented by the recording system’s limitation and some of it presented by the recording media itself (vinyl, tape, etc.). The desire to minimize the noise floor and increase the desired signal is almost biological.
EMPHASIS

In 1965, Ray Dolby invented the Dolby Noise Reduction System. His system is a form of signal processing designed to reduce tape hiss. Dolby Noise Reduction went through several iterations, Dolby A, B, C, etc. … but the foundation of the process is dynamic pre-emphasis. Considered an “encode-decode” system, program material is analyzed for volume and frequency content. Low-level passages and higher frequency audio, where noise is more present, are recorded at a higher volume to tape during the encode process to improve the signal to noise ratio. On the decode end, the volume and frequencies are reproduced at their original quieter level, and the noise floor gets quieter as well. The end result is not removing noise from the original signal, but rather a process to minimize additional noise from being introduced by the medium during playback.

RESTORATION FOR RE-RELEASE

By the late ’80s and early ’90s, the compact disc format was taking off and record companies knew there was a lot of money to be made by re-releasing their existing sound archives and libraries. However, there was a concern that many of these original recordings—many riddled with clicks, pops, and other signal degradation—might not be pristine enough to play alongside the new modern digital recordings of the day.

In 1989, Gordon Reid was asked by the British Library National Sound Archive (BLNSA) to take research that it had funded within the Cambridge University Engineering Department, and help turn it into a commercial enterprise. Coming from an astrophysics background, he already had experience removing interference from radio telescope data. As it turned out, removing clicks and pops from a digital recording of an old record was not that different. After attending conference after conference and taking meetings all over the world, by the end of 1990, the first CEDAR systems were installed in major countries across the globe.

Reid explains, “Sometimes described as ‘removing the cream from the coffee,’ audio restoration starts with a single signal that contains both the wanted signal and the unwanted noise. In the 1980’s, the key to the problem was to design a set of filters that could remove the cream without ruining the coffee and make them efficient enough to run on the technology of the day. Different problems required different filters. De-clicking required signal modeling and interpolation. De-crackling required a new technology called ‘Split & Recombine’ that was invented in-house at CEDAR. And early de-hissing products used a technique called Spectral Subtraction.” Other new filters tackled digital de-buzzing without creating the hollow sound of traditional filtering. CEDAR also introduced digital timing correction by inventing the dynamic sub-sample phase corrector. In other words, there is a lot of complex math going on under the hood!

At the start, CEDAR and the other company active in the field at that time, Sonic Solutions, manufactured de-hissers based upon Spectral Subtraction that required a “noise print.” A few years later, this idea was adopted by other companies such as Digidesign, which released the Digidesign Intelligent Noise Reduction (DINR) plugin for Pro Tools. From an advertisement I found online, “DINR reduces broadband noise, such as tape hiss, by ‘intelligently’ subtracting the noise from the digital audio file. First, the noise signature is created by selecting and analyzing an example of the noise within the source material. (A brief, isolated passage of noise is ideal but not necessary.) Using this signature, the effects of the noise are then removed or greatly reduced.”

This method of utilizing a noise print to reduce noise is still common in many plugins today. Noise print is still used in two modules of the CEDAR Cambridge System but, as Reid explains, that is more for “historical reasons.” He continues, “Modern technology does not require a noise fingerprint. That’s been superseded by various methods of estimating the noise at every given moment… So as the noise changes … it reevaluates what the noise content is.”

Introduced by CEDAR in an early form in 1994, but coming to prominence in its dialogue noise suppressors a few years later, this was perhaps our first sight of machine learning in audio processing. “It’s like a dynamically updating fingerprint, even in the presence of the wanted signal,” Reid explains. Since noise is, by definition, always changing, it makes sense that as the actual noise strays away from a traditional, static noise print, small bursts of noise get through or small bits of wanted signal get reduced, and the end result are the lovely artifacts that make us all cringe.

Gordon Reid, Managing Director at CEDAR Audio.
SPECTRAL EDITING

Next came the spectral editor, which was born out of a CEDAR project investigating better ways to de-click audio and remove other unwanted short duration events. Reid explains, “We had found that the spectral power of some clicks and related disturbances was constrained in the frequency domain and that we could perform a more accurate repair if we only processed the damaged frequencies rather than the whole signal in the time domain.

This led to the definition of a click in both frequency and time, and it was then a short jump to removing the unwanted sounds of dropped microphones, slammed doors, coughs during the otherwise perfect take, and everything else. We patented this technology, and every spectral editor that you can buy today is based upon technology that is licensed (or should be licensed) from CEDAR.” CEDAR released Retouch in February of 2002, and it was the first time the world had witnessed spectral editing. With a spectrogram, audio could now be presented in three dimensions: time, amplitude, and frequency.

iZotope released its first edition of RX in June of 2010. Incorporating some spectral editing technology licensed from CEDAR, this was offered at a competitive price point and, for many mixers at the time, was their first introduction to the world of complex noise reduction and spectral repair. iZotope offered quick and easy-to-use tools to complete tasks such as de-clicking, de-crackling, and broadband noise reduction. As each new edition was released, tools such as De-Rustle, De-Wind, and De-Plosive made their way into the system.

With the release of RX6 in 2018, iZotope introduced Dialogue Isolate. Dialogue Isolate uses machine learning to recognize and separate spoken dialogue from non-stationary background noises. When interviewed in the Spring 2020 edition of CAS Quarterly, Mike Rozett, iZotope’s principal product manager, had this to say about the utilization of artificial intelligence (A.I.), “I would say that machine learning is getting to be a bigger and bigger part of what we’re doing... It has allowed us to solve problems in a way that you couldn’t do before. Artificial intelligence has helped a lot of industries innovate, and it’s no exception in audio. Machine learning allows you to do some incredible things like separate a source. There were some EQ tricks you could do to separate different bands and side processing—and they were pretty effective at the time. But with machine learning, you can take a file and break things into parts and stems. That’s still really early in its implementation and I think, going down the road with it, we’re going to do some things that even a few years ago seemed impossible.” [Of note, I used the Dialogue Isolate feature extensively on a recent series this summer where much of the clip-based source footage contained existing music beds under the dialogue that could not be licensed. With Dialogue Isolate and some creative rebuilding, dozens of clips were able to be used. –Ed.]

Today, there are many entries to consider alongside CEDAR and iZotope, such as Accusonus ERA Noise Remover, Brusfri by Klevgrand, Audionamix IDC (Instant Dialogue Cleaner), Acon Digital’s Extract: Dialogue, and Zynaptic’s “Un” series. As new tools come to market, we have more opportunities to do things we once deemed impossible. However, the noise-reduction story is certainly far from over. It does appear that machine learning will likely continue to play a huge role in completing the complex mathematical equations required, but I’m sure we will still encounter some audio that “just can’t be fixed” for quite some time.

With that, let us not forget the philosophical side of the equation. As our tools advance, we need to be sure we don’t use them just because we can, but because the material is calling for it. Actors’ performances have life and the environment and natural acoustics of a space have attributes that create dimension and have a breath of their own. We don’t want to erase that through heavy-handed processing. So often in regard to noise reduction, less is more. Our number one objective is to present the material faithfully in order to tell the best story possible.
RF in the Twenty-First Century
by G. John Garrett CAS

Let’s take a look at the beast that gives us freedom, traps us, mystifies, and frustrates. No, not our spouses, the use of RF in production sound!

A lot has happened in the last five years. While the FCC has auctioned off a lot of the crowded spectrum we use every day, huge leaps in technology have helped us overcome this setback. However, the laws of physics don’t change, which is why having a good understanding of what happens between the mic and the recorder can help.

Mixers today are often using wireless paths to the recorder exclusively. There are more emerging wireless services on the set. Take your production into a city and there are literally thousands of RF emitters in range of your antennas. Yikes! How do we manage to get through the day?

Luckily, knowing some scientific principles can help. So can knowing how to apply them to your situation. First, let’s talk about what radio is.

Albert Einstein put it this way: “You see, wire telegraph is a kind of a very, very long cat. You pull his tail in New York and his head is meowing in Los Angeles. Do you understand this? And radio operates exactly the same way: you send signals here, they receive them there. The only difference is that there is no cat.”

There is something that replaces the cat though, it’s a collection of resonant circuits which generate, emit, are susceptible to, and try to filter out all the non-cats except yours. An electromagnetic wave is generated at a specific center frequency with modulation characteristics that let it carry information. Your receiver is designed to just listen for signals in the same band, and those resonant circuits are tuned to the same frequency as the transmitter.

Depending on the design, there are filters of one sort or another to help keep spurious signals, images, and other undesired artifacts out of the information you’re trying to receive. Also, depending on the design, you can fool the receiver by having two transmitters nearby tuned too close to each other such that a mixing product can be generated inside the receiver, causing interference. Check this link for a good explanation of how this works with most wireless mics: https://www.electronics-notes.com/articles/radio/rg-mixer/rg-mixing-basics.php

Sometimes mixing is a normal part of receiver behavior, like when the carrier frequency is mixed with an intermediate frequency (IF) oscillator or two and the remaining difference signal is the desired audio. When another near-frequency transmitter is close by, this can result in unwanted intermodulation (mixing) distortion (IMD). This is why there are frequency coordination apps, and minimum frequency spacing requirements when using multiple radios in the same band. The other maddening source of this is when two transmitted signals combine so that the sum or difference in the frequencies lands on one of the intermediate frequency oscillators (often 10.1 MHz and 455 kHz). That’s going to show up in the audio.

So, how can we avoid some of these problems? One important law to be aware of is the inverse square law which says that your radio signal strength diminishes at a rate of $1/r^2$. That means if you double the distance from the transmitter, there is $1/4$ power at the receiver, triple $= 1/9$, and so on.

There are several good illustrations of this on YouTube and
The short story here is that if you’re getting mixing from two transmitters close to one of your receivers—and transmitting on frequencies close enough to generate a mixing product in the passband of the receiver—moving one twice the distance (which could be inches!) can make a huge difference to reduce or eliminate local mixing and intermodulation distortion in AM and FM systems.

Next, there is fundamental overload. That is, a very strong signal close to the receiver that overwhelms the input stage such that it can’t filter out all the energy, resulting in the receiver becoming “deaf” to the intended transmission. This usually happens when the signal is close in frequency as well, but sufficient out-of-band power levels can sometimes also wipe out reception. Sharp mechanical filters might help, but often the signal penetrates the case of the receiver itself and winds up directly in transistor junctions. Time to move something!

In crowded urban environments, you can experience both intermod and fundamental overload, but the former is more likely. Modern wireless receivers are very sensitive, and a 10 mW signal can be heard for a few hundred yards in a quiet (RF) environment, sometimes with rubber duckie antennas. Most people have elevated dipole or log-periodic directional array (LPDA) antennas, sometimes amplified. These broadband antennas are great for picking up all your radios tuned from 470 MHz-610 MHz. As the first element in your receive chain, they also pick up everything else that appears in that spectrum; both fundamentals and mixing products. Especially with powered antennas, when someone keys a walkie nearby, the active components will start nonlinear mixing with all kinds of signals.

Hold that thought. With a multiple receiver setup, there is some kind of antenna distribution network. Some have tuned circuit filters built in to limit all this amplified crap of non-interest, but most do not. You can buy external bandpass filters to place inline, and they help a lot. You might be using an antenna that’s too good. Try eliminating the amplifier circuit, lowering the mast, pointing the antenna away from the suspected interference source, or going to a lower gain antenna. After you’ve done this, then you can raise transmitter power. The idea is to both lower the noise and raise the signal so the receiver can accurately decode the modulation. There are even “doormat” antennas that have a very limited pickup range, popular with installed systems in (RF) noisy environments.

With a little extra knowledge, we can successfully overcome some of the things that may interfere with our day.

Some best practices to help maximize the signal-to-noise ratio of your system:

- Use good, low-loss coax with your antenna
- Consider putting a few turns of your coax through a toroid choke
- Orient your antenna to minimize pickup from unwanted sources
- Make sure your connectors are clean and tight
- Use a bandpass filter in front of your antenna distribution system
- Powered antennas introduce nonlinear components that can contribute to IMD, avoid them in RF-dense environments
- Physically separate transmitters from receivers and from each other
- Separate transmitters by frequency to avoid IMD and use frequency-allocating tools
- Remember the inverse square law, move interfering sources away
One of my favorite pastimes on set is sitting with the crew during lunch, geeking out over obscure quotes from famous movies. Two personal favorites: “Times must, and always do change, my friend,” (a surprisingly poignant line used to anchor a sea of jokes in Coming to America), and “That’s all I have to say about that,” (a simple line used to punctuate complex stories in Forrest Gump). So, when I got the chance to interview William Kaplan CAS, the production mixer responsible for recording these two lines of incredible sounding dialogue, I jumped at the opportunity. With more than 50 years in the entertainment business and more than 155 feature films on his list of credits, Bill is an obvious choice to receive the CAS Career Achievement Award. He has lived a fascinating life and is well known in the industry. There is a lot to learn from him.
Your childhood was definitely unique…
From the time I was 5 years old, I hadn’t lived with my parents. My mother was subpoenaed to the House of Un-American Activities—she felt it was her greatest accomplishment for her very left-wing, public, social speeches. Because my father was a production manager at MGM Studios—and because blacklisting was rampant—my mother had to leave the U.S. so that my father could keep his job.

I lived with many different people in the most interesting situations. One nanny took my sister and I on the road for several years. It did concern my father, who was working for Fox Studios in London—and it concerned law enforcement. But it was actually the best education and loving concern I ever received. A minor downfall was that I never learned how to read. I did deal with that, much later in life. One can’t ask for everything.

What was high school like?
I went to a private boarding school in Ojai, CA. It was started by Jiddu Krishnamurti and Aldous Huxley. It was very, very small. There was no grade delineation, no letter grades, no competition of any form, no scorekeeping in sports, no TV or outside newspapers, no popular music—just classical music performed for us every morning with a meditation to follow. It was very different than where I had come from. I was a punk! I had a “screw you” attitude with Lucky Strikes rolled up in my shoulder sleeve. I was filled with so much angst and low self-esteem. I got thrown out the first day! My dad came up and they decided to give me a second chance.

How did you turn things around?
The hottest thing a guy could do there was to be on the dance tour… I soon found myself touring California with a Ukrainian folk dance group. After four years of

In addition to our correspondence by phone and email, I cited an in-depth video interview with Kaplan by Jake Slaney CAS and his company, SoundsAdventurous LTD, and also pulled some excerpts from Bill’s CAS podcast interview with moderator Peter Devlin CAS. (https://cinemaaudiosociety.org/podcasts/) This piece contains some highlights.

this, I was different. I became their student body president and wrote their constitution. I am on the Executive Board of the school today.

[Another chain of events that influenced me was that] from 13 to 18, the first half of my summer was spent moving and working with California’s migrant fruit workers. I moved with the workers up the Central Valley. I was protesting the short hoe controversy involving Cesar Chavez, so field workers wouldn’t have to stoop over their entire workday. My stepfather was the wealthy farmer who was on the other side of all this controversy. I’d fly with him in his private plane to work and I would go off in my political direction. He never noticed. The second half of the year, I would visit my father in Europe, on the set of Cleopatra and so many others, staying at the most luxurious hotels in the world.

Did your dad want you to follow in his footsteps and work in the movie industry?
As I was brought up on the set, I had an early sense of how movies were made. But I don’t think my dad wanted me in the film business. He was always on location and he saw what it does to families. He’d done Lawrence of Arabia, Doctor Zhivago, and The Ten Commandments. But he did buy me a Nagra 4L when I was graduating from college and I thought, “How do you operate this thing? It’s so complicated.”

Weren’t you actually a camera operator before becoming a mixer?
James Wong, who was the gardener in Chinatown, was producing a Taiwanese film that was shot primarily in the U.S. He got a list of what he thought was potential cinematographers, but it was really the waiting list to get into film school. So, he called me and asked if I would like to shoot his film. I said, “Absolutely!” I guess I’d seen enough setups to understand a master, a two-shot, an over-the-shoulder, and a single. It was $50/week to shoot and it was a wonderful experience. Coming from film school, the nonunion world, and Roger Corman,
most of us experienced almost every job required to produce a film. I was an editor. I did some post mixing. I did hair, makeup, wardrobe. I was a gaffer and I was even a caterer. It took years to let old habits go—to grow up professionally, to admire and respect the unique knowledge of other departments.

So, when did you get into the union (695)?
I got on the studio lot by a rebel, John Landis, who got his break from the mailroom at Universal! The sound department at Universal did not want me to do the movie. They knew I had my own equipment. [During principal photography of Animal House], there were still guys living in the fraternity house and I needed to be in the union before wrapping. There was a wonderful woman cooking pancakes, and the only place I could get my sound cart was [in the kitchen] past the center grill island next to a dial payphone. I was back there recording, “Did we care when the Germans bombed Pearl Harbor?” and the phone rang. I picked it up and it was the head of my union. He said, “I have to replace you because you’re not on the producer’s roster and you have not come in and taken the formal union oath.” I said, “I have a good idea! Let’s do the oath right now over the phone.” I’m doing this [motions holding a phone between his ear and shoulder while mixing with his right hand and raising his left] while I’m recording that scene. He said, “Well, son, you’re in the union,” and I said, “Thanks so much!”

Have you ever laughed out loud while recording?
On Kentucky Fried Movie [one of many films he did with John Landis], it was like we mixed in a laugh track live. It was one of the most difficult things to control all of production laughing all over the tracks. On Animal House and The Blues Brothers, we had somewhat the same struggles because things would happen or be said that caught everyone off guard and we would all crack up laughing. Also, I was a personal friend with John Belushi. I learned so much from that man’s heart. I’ll be forever grateful.

You’ve traveled all over the world for work. What locations stick out in your memory?
Movies are sort of like being part of the circus. You get very involved when you’re there and then you take down the tent and you pack it up and go to the next town; that vagabond life. At 17, I got to work on John Frankenheimer’s Grand Prix, as my father was the production manager. With a movie and my Formula One track license, I got to drive every Grand Prix track in Europe, which was one of the most thrilling things I’ve ever done.

I lived for six months with pure Mayans in southern Mexico who had never seen their image projected. I did a documentary in Northern India, living on the ground and eating out of the goodness of Sikh temples, and did several interview sessions with Indira Gandhi. I went into the Vatican City with Frank Sinatra on Von Ryan’s Express. Film has taken me around the world—twice. Who gets to do these amazing things? Career film people!
You’ve mixed so many different film genres, ranging from thrillers, to dramas, to comedies. How do you choose the projects that you want to work on?

[Recalling one occasion.] I was given scripts for *Pretty in Pink* and *Top Gun*. I gave them to my boom man and said, “Read these, and in one sentence, tell me what they are, and I’ll make a decision.” He said, “Girl gets a pink dress—goes to the dance” and “Boy gets to fly as good as dad.” I said, “We’re taking that fly movie.” [smiles]

I then went in for a proper Hollywood interview with Tony Scott. He said, “I want you to have an Ampex tape recorder and do the whole film 4-track.” I told him it’s pretty impractical going up and down vertical ladders on an aircraft and humidity. I thought to myself, “Bill, you’re blowing it. He doesn’t want to hear why he can’t have his 4-track.” So, I got on my knees and said, “I want to do this movie so bad! I’m a pilot, did you see?” I had put my pilot’s license on the top of my résumé because I fly a two-seater. And he liked that. I said, “I’ll bust my a** for you. Please let me record your movie!” And he did. And we became great pals. I miss him dearly.

In your interview for *Romancing the Stone*, Michael Douglas wondered how to test your knowledge and even suggested, albeit humorously, that you prove to him you could fix a broken Nagra. How technical are you with your equipment and what tasks or duties are you comfortable delegating to your crew?

I am not a digital techie person at all. I can’t pull it off myself. Tommy Giordano, who has been with me for a few decades, covers me with all his vast knowledge at that proficiency level. He suggests new equipment, we review it and then we usually get it. Maybe it’s just that I’m terribly fortunate. The crews that I’m working with are extraordinarily good. I’m still impressed with how good they are and how easy it is for them to do something very complicated.

How do you know when to speak up and when to keep quiet if there’s a sound issue?

I think that I have an obligation to do it at the right time. On *Tight Rope*, we were recording a wide shot and a ship was just behind the dialogue, so the actors could barely hear themselves. I went up to Mr. Eastwood and told him that I couldn’t even tell what language they were speaking. He turned to me, put both hands on my shoulders, and said, “I’m contracted to build a wall. I’m not going to fall in love with every **** brick in it. Have a good weekend!” He’s quite brilliant at his craft. There’s no bullhorn or walkie-talkies without a headset. There’s total respect and quiet on the set, which is really unique. That man knows his art and craft.
FOR YOUR CONSIDERATION

OUTSTANDING ACHIEVEMENT IN SOUND MIXING
MOTION PICTURE—ANIMATED

Vince Caro, CAS, Doc Kane, CAS, Michael Semanick, CAS,
Juan Peralta, Brad Haehnel, Scott Curtis

ONWARD

“...puts you in a world that’s not just visually impressive
but makes you care about the characters.”

THE WASHINGTON POST / Kristen Page-Kirby

“Pure Perfect Pixar.”

EMPIRE / Ben Travis
When I would ask John Landis a question, he would always look around to others and say, “If you were any f***** good, you could do it.” There’s some truth to it. I think, “Get better. Do it. Figure it out.” I like those kinds of challenges.

My crew and I like to go in early, talk with wardrobe, see every piece of clothing for the main characters, and discuss how we might get a radio mic in it. Because today, we put a mic on everyone now, first thing, whether we’re going to use it or not.

Some actors refuse to wear a radio mic. When I meet an actor, I tell them, “Be aware, you’re on a radio mic and I will do my absolute best to put you down when you’re not performing.” A lot of actors will unplug themselves right on cut and I completely respect that. They don’t always re-plug themselves in, and once in a while I’ll have to ask for a cut. When asked why I say, “We just have a problem.” I never throw anyone under the bus.

Do you ever get emotional or overwhelmed on set?
I do remember crying openly during Forrest Gump. When Forrest went to Jenny’s grave to give her young Forrest’s letter, we all cried. Mr. Hanks did every take differently, with a completely different spirit and mental ability. Every take ripped at your heart. Even our seasoned crew, who had seen it all, couldn’t stop crying, each and every take.

On Crimson Tide, the mix was so difficult. I went to the men’s room into a stall, got on my knees and questioned if I was good enough to do this. That was a moment!

On Irreconcilable Differences, 9-year-old Drew Barrymore [was about to film a gut-wrenching scene in court]. She was sucking her thumb for real in the witness box. On “action,” she pulled out her thumb and gave a two-page, nonstop monologue, supporting her legal complaint [about divorcing her parents]. It was without a glitch—gut wrenching and amazingly passionate. We were all in awe. When we heard “cut,” her thumb went right back in her mouth. That wasn’t in the script. That was a very little girl who amazed us as an actress.

What films are you most proud of working on?

That’s an incredible “Top of the list!” What are you working on now?
I’m working on my first TV production—The Morning Show for Apple TV.

What random trivia might people be surprised to learn about you?
I’m an avid wakeboarder and snowboarder. I practice yoga. I remodeled my home. I trap shoot. I’m pretty good on a backhoe and dozer. I can weld. I built three super modern sound trailers for rental to other mixers. And I try to speak 30 minutes of Spanish every day.

What are you most proud of?
Above all, I’m a dedicated and involved father to my adult children. My daughter will be a veterinary doctor in just a few months and my son installs broadcast TV studios around the world. I’m beyond proud of them.

Where do you see yourself in 5-10 years?
I hope to stay teachable, kind, and healthy. I feel that I’m better today than I’ve ever been. Experience pays off. I’m starting to think what retirement might be like... Then I ask myself, “Why are you thinking of that?” I only see myself here and now. Right here, right now.

Any closing comments?
I want to thank the CAS at large and the individuals who have to make these difficult choices. To simply be among a group of talented and successful people for almost five decades—and now that I’m chosen for this award—it’s very, very humbling.
Multi-hyphenate George Clooney will receive the Cinema Audio Society Filmmaker Award at the 57th Annual CAS Awards on April 17, 2021, in a virtual awards celebration.

“The CAS could not be more excited to honor Mr. George Clooney with our Filmmaker Award,” said CAS President Karol Urban. “George embodies a strength of character that not only shows in the integrity and preeminence of his works, but in the way he regards and is regarded by his creative teams and collaborators. In such a time of uncertainty, his hardworking, innovative, and generous demeanor and body of exceptional films and television projects makes him an especially exemplary filmmaker for 2020.”

George Clooney is recognized as much for his global humanitarian efforts as he is for his accomplishments in the entertainment industry.
Clooney’s achievements as a performer and a filmmaker have earned him, in part, two Academy Awards, four Golden Globes, including the Cecil B. DeMille Award, four SAG Awards, one BAFTA Award, an Emmy, and an American Film Institute Life Achievement Award. When Clooney received his eighth Academy Award nomination, he earned a special spot in the Oscar record books. He has now been nominated in more categories than anyone else in Oscar history.

Through his production company Smokehouse Pictures, Clooney’s current project is The Midnight Sky for Netflix, which was released at the end of 2020. Clooney not only directed the film but starred in it as well. Next up, Clooney will direct and produce The Tender Bar, based on J.R Moehringer’s memoir of the same name, alongside his Smokehouse partner Grant Heslov for Amazon Studios.

Among the films he has produced, directed, and/or starred in include Suburbicon, Money Monster, Our Brand Is Crisis, and The Monuments Men. In 2016, he also starred in Hail, Caesar!; Gravity; and Tomorrowland. Other Smokehouse films include the Academy Award–winning drama Argo, August: Osage County, and The Ides of March.

Clooney and Heslov first worked together at Section Eight, a company in which Clooney was partnered with Steven Soderbergh. Section Eight productions included Ocean’s 11; Ocean’s 12; Ocean’s 13; Michael Clayton; The Good German; Good Night, and Good Luck.; Syriana; Confessions of a Dangerous Mind; The Jacket; Full Frontal; and Welcome to Collinwood.

Before his film career, Clooney starred in several television series, becoming best known to TV audiences for his five years on the hit NBC drama ER.

Clooney is a strong First Amendment advocate with a deep commitment to humanitarian causes. In 2006, Clooney and his father, Nick, went to drought-stricken Darfur, Africa, to film the documentary A Journey to Darfur. Clooney’s work on behalf of Darfur relief led to his addressing the United Nations Security Council.

Among the many honors received as a result of his humanitarian efforts in Darfur, one of them was the 2007 Peace Summit Award, given at the Eighth World Summit of Nobel Peace Prize Laureates. In 2008, Clooney was designated a U.N. Messenger of Peace, one of eight individuals chosen to advocate on behalf of the U.N. and its peacekeeping efforts.

The Academy of Television Arts & Sciences awarded Clooney with the Bob Hope Humanitarian Award at the 2010 Primetime Emmys. Later that year, Clooney received the Robert F. Kennedy Ripple of Hope Award for his dedication to humanitarian efforts in Sudan and Haiti.

Clooney will be the 16th CAS Filmmaker honoree. Past honorees have included James Mangold, Steven Spielberg, Joe Wright, Jon Favreau, Jay Roach, Richard Linklater, Edward Zwick, Jonathan Demme, Rob Marshall, Taylor Hackford, Henry Selick, Paul Mazursky, Bill Condon, Gil Cates, and Quentin Tarantino.
The 57th Annual CAS Awards Nominees for Outstanding Achievement in Sound Mixing for 2020

The Cinema Audio Society announces the nominees for the 57th Annual CAS Awards for Outstanding Achievement in Sound Mixing for 2020 in seven categories as well as the Outstanding Product nominations.

“2020 was wrought with unprecedented challenges, yet the nominees of the 57th Annual CAS Awards display a stellar example of quality and creativity that rivals any of our previous years. This year’s celebration is a testament to the outstanding technical ingenuity and creative prowess of our sound mixing community,” said CAS President Karol Urban. “It is with immense admiration and pride that we announce our nominees for the 57th Annual CAS Awards for Outstanding Achievement in Sound Mixing.”

Outstanding Achievement in Sound Mixing for 2020

Motion Picture—Live Action

Greyhound
Production Mixer – David Wyman CAS
Re-Recording Mixer – Michael Minkler CAS
Re-Recording Mixer – Christian Minkler CAS
Re-Recording Mixer – Richard Kitting
Re-Recording Mixer – Beau Borders CAS
Scoring Mixer – Greg Hayes
Foley Mixer – George A. Lara CAS

Mank
Production Mixer – Drew Kunin
Re-Recording Mixer – Ren Klyce
Re-Recording Mixer – David Parker
Re-Recording Mixer – Nathan Nance
Scoring Mixer – Alan Meyerson CAS
ADR Mixer – Chanteen Richards-Steeves
Foley Mixer – Scott Curtis

News of the World
Production Mixer – John Patrick Pritchett CAS
Re-Recording Mixer – Mike Prestwood Smith
Re-Recording Mixer – William Miller
Scoring Mixer – Shawn Murphy
ADR Mixer – Mark DeSimone CAS
Foley Mixer – Adam Fil Méndez CAS

Sound of Metal
Production Mixer – Phillip Bladh CAS
Re-Recording Mixer – Jaime Baksh
Re-Recording Mixer – Michelle Couttolenc
Re-Recording Mixer – Carlos Cortez Navarrette
Foley Mixer – Kari Vähäkuopus

The Trial of the Chicago 7
Production Mixer – Thomas Varga CAS
Re-Recording Mixer – Julian Slater CAS
Re-Recording Mixer – Michael Babcock CAS
Scoring Mixer – Daniel Pemberton
ADR Mixer – Justin W. Walker
Foley Mixer – Kevin Schultz
Outstanding Achievement in Sound Mixing for 2020

Motion Picture—Animated

A Shaun the Sheep Movie: Farmageddon
Dialogue & ADR Mixer – Dom Boucher
Re-Recording Mixer – Chris Burdon
Re-Recording Mixer – Gilbert Lake
Re-Recording Mixer – Adrian Rhodes
Scoring Mixer – Alan Meyerson CAS
Foley Mixer – Ant Bayman

Onward
Original Dialogue Mixer – Vincent Caro CAS
Original Dialogue Mixer – Doc Kane CAS
Re-Recording Mixer – Michael Semanick CAS
Re-Recording Mixer – Juan Peralta
Scoring Mixer – Brad Haehnel
Foley Mixer – Scott Curtis

Soul
Original Dialogue Mixer – Vincent Caro CAS
Re-Recording Mixer – Ren Klyce
Re-Recording Mixer – David Parker
Scoring Mixer – Atticus Ross
Scoring Mixer – David Boucher CAS
ADR Mixer – Bobby Johanson CAS
Foley Mixer – Scott Curtis

The Croods: A New Age
Original Dialogue Mixer – Tighe Sheldon
Re-Recording Mixer – Christopher Scarabosio CAS
Re-Recording Mixer – Leff Lefferts
Scoring Mixer – Alan Meyerson CAS
Foley Mixer – Richard Duarte
Foley Mixer – Scott Curtis

Trolls World Tour
Original Dialogue Mixer – Tighe Sheldon
Re-Recording Mixer – Scott Millan CAS
Re-Recording Mixer – Paul Hackner
Scoring Mixer – Christopher Fogel CAS
Foley Mixer – Randy K. Singer CAS

Motion Picture—Documentary

David Attenborough: A Life on Our Planet
Re-Recording Mixer – Graham Wild
Scoring Mixer – Gareth Cousins CAS

My Octopus Teacher
Re-Recording Mixer – Barry Donnelly
Foley Mixer – Charl Mostert

The Bee Gees: How Can You Mend a Broken Heart
Re-Recording Mixer – Gary A. Rizzo CAS
Re-Recording Mixer – Jeff King

The Social Dilemma
Production Mixer – Mark A. Crawford
Re-Recording Mixer – Scott R. Lewis
Scoring Mixer – Mark Venezia
Foley Mixer – Jason Butler

Zappa
Production Mixer – Monty Buckles
Re-Recording Mixer – Marty Zub CAS
Re-Recording Mixer – Lon Bender
Outstanding Achievement in Sound Mixing for 2020

Non-Theatrical Motion Picture or Limited Series

**American Horror Story: 1984**
Ep. 9 “Final Girl”
Production Mixer – Alex Altman
Re-Recording Mixer – Joe Earle CAS
Re-Recording Mixer – Doug Andham CAS
ADR Mixer – Judah Getz CAS
Foley Mixer – Jacob McNaughton

**Fargo Ep. 7 “East/West”**
Production Mixer – J.T. Mueller CAS
Re-Recording Mixer – Jeffrey Perkins
Re-Recording Mixer – Josh Eckberg
Scoring Mixer – Michael Perffit
ADR Mixer – Matt Hovland
Foley Mixer – Randy Wilson

**Lovecraft Country**
Ep. 1 “Sundown”
Production Mixer – Amanda Beggs CAS
Re-Recording Mixer – Marc Fishman CAS
Re-Recording Mixer – Mathew Waters CAS
Scoring Mixer – Brad Haehnel
ADR Mixer – Miguel Araujo
Foley Mixer – Brett Voss CAS

**The Queen’s Gambit**
Ep. 4 “Middle Game”
Production Mixer – Roland Winke
Re-Recording Mixer – Eric Hoenh CAS
Re-Recording Mixer – Eric Hirsch
Re-Recording Mixer – Leo Marcil
Scoring Mixer – Lawrence Manchester

**Watchmen**
Ep. 6 “This Extraordinary Being”
Production Mixer – Doug Astell
Re-Recording Mixer – Joseph DeAngelis CAS
Re-Recording Mixer – Chris Carpenter
Scoring Mixer – Atticus Ross
ADR Mixer – Judah Getz CAS
Foley Mixer – Antony Zeller CAS

Outstanding Achievement in Sound Mixing for 2020

Television Series—One Hour

**Better Call Saul**
Ep. 8 “Bagman”
Production Mixer –
Phil W. Palmer CAS
Re-Recording Mixer –
Larry B. Benjamin CAS
Re-Recording Mixer – Kevin Valentine
ADR Mixer – Chris Navarro CAS
Foley Mixer – Stacey Michaels CAS

**Ozark**
Ep. 10 “All In”
Production Mixer – Filipe Borrero CAS
Re-Recording Mixer –
Larry B. Benjamin CAS
Re-Recording Mixer – Kevin Valentine
Scoring Mixer – Phil McGowan CAS
ADR Mixer – Chris Navarro CAS
Foley Mixer – Catherine Thomas

**The Crown S4, Ep. 1 “Gold Stick”**
Production Mixer – Chris Ashworth
Re-Recording Mixer – Lee Wapole
Re-Recording Mixer – Stuart Hilliker CAS
Re-Recording Mixer – Martin Jensen
ADR Mixer – Gibran Farrah
Foley Mixer – Catherine Thomas

**The Marvelous Mrs. Maisel S3, Ep. 8**
“A Jewish Girl Walks Into the Apollo...”
Production Mixer – Mathew Price CAS
Re-Recording Mixer – Ron Bochar CAS
Scoring Mixer – Stewart Lerman
ADR Mixer – David Boulton
Foley Mixer – George A. Lara CAS

**Westworld**
S3, Ep. 4 “The Mother of Exiles”
Production Mixer –
Geoffrey Patterson CAS
Re-Recording Mixer –
Keith A. Rogers CAS
Re-Recording Mixer – Benjamin L. Cook
Scoring Mixer – Ramin Djawadi
Outstanding Achievement in Sound Mixing for 2020

Television Series—Half-Hour

**Dead to Me**
Ep. 201 “You Know What You Did”
Production Mixer –
**Steven Michael Morantz CAS**
Re-Recording Mixer –
**Brad Sherman CAS**
Re-Recording Mixer – **Alexander Gruzdev**
ADR Mixer – **Jason Oliver**

**Modern Family**
Ep. 1117 “Finale Part 1”
Production Mixer –
**Stephen A. Tibbo CAS**
Production Mixer – **Srdjan Popovic**
Re-Recording Mixer – **Dean Okrand CAS**
Re-Recording Mixer – **Brian Harman CAS**
Re-Recording Mixer – **Peter Bawiec**
ADR Mixer – **Matt Hovland**
Foley Mixer – **David Michael Torres CAS**

**Ted Lasso**
Ep. 110 “The Hope That Kills You”
Production Mixer –
**David Lascelles AMPS**
Re-Recording Mixer – **Ryan Kennedy**
Re-Recording Mixer – **Sean Byrne**
ADR Mixer – **Brent Findley**
ADR Mixer – **Marilyn Morris**
Scoring Mixer – **George Murphy**
Foley Mixer – **Jordan McClain**

**The Mandalorian**
Ep. 102 “Chapter 2: The Child”
Production Mixer – **Shawn Holden CAS**
Re-Recording Mixer – **Bonnie Wild**
Re-Recording Mixer – **Stephen Urata**
Scoring Mixer – **Christopher Fogel CAS**
ADR Mixer – **Matthew Wood**
Foley Mixer – **Blake Collins CAS**

**The Mandalorian**
Ep. 205 “Chapter 13: The Jedi”
Production Mixer – **Shawn Holden CAS**
Re-Recording Mixer – **Stephen Urata**
Re-Recording Mixer – **Bonnie Wild**
Scoring Mixer – **Christopher Fogel CAS**
ADR Mixer – **Matthew Wood**
Foley Mixer – **Jason Butler**

Outstanding Achievement in Sound Mixing for 2020

Television Non-Fiction, Variety, Music Series or Specials

**Beastie Boys Story**
Production Mixer – **Jacob Feinberg**
Production Mixer – **William Tzouris**
Re-Recording Mixer – **Martyn Zub CAS**

**Bruce Springsteen’s Letter to You**
Production Mixer – **Brad Bergbom**
Re-Recording Mixer – **Kevin O’Connell CAS**
Re-Recording Mixer – **Kyle Arzt**
Music Mixer – **Bob Clearmountain**

**Hamilton**
Production Mixer – **Justin Rathbun**
Re-Recording Mixer – **Tony Volante**
Re-Recording Mixer – **Rob Fernandez**
Re-Recording Mixer – **Tim Latham**

**Laurel Canyon: A Place in Time**
Ep. 1
Re-Recording Mixer –
**Gary A. Rizzo CAS**
Re-Recording Mixer – **Stephan Urata**
Re-Recording Mixer – **Danielle Dupre**
Re-Recording Mixer – **Tony Villaflor**
Scoring Mixer – **Dave Lynch**

**NASA & SpaceX: Journey to the Future**
Production Mixer – **Erik Clabeaux**
Re-Recording Mixer – **Michael Keeley CAS**
DPA Microphones, Inc.
DPA 4097 CORE Micro Shotgun Mic
Its supercardioid polar plot offers a highly directional pick-up pattern, as well as low self-noise and high sensitivity. With a linear response, low distortion, and an extremely large dynamic range, it sounds great no matter how challenging the environment. Also, dialog and background noise off to the side (off-axis) of the mic preserves the audio quality; it just drops in level.

Lectrosonics, Inc.
DCR822 Dual Channel Digital Audio Receiver
The DCR822 compact 2-channel digital receiver with analog and digital audio outputs utilizes the Lectrosonics signature digital architecture with remarkable audio quality and ultra-low latency. The receiver includes an extended operating range, a flexible output routing scheme, and a digital recorder at 24 bits, 48 kHz—allowing up to four audio tracks on a microSD card.

Shure Incorporated
Axient AD3
The Axient Digital AD3 plug-on transmitter transforms any microphone into an advanced, portable Axient Digital AD Series wireless microphone, delivering impeccable audio quality and RF performance, wide-tuning, and encryption features. It has support for both AA and Shure SB900-series rechargeable battery options and is designed to resist sweat, moisture, and debris.

Sound Devices, LLC
CL-16 Linear Fader Control Surface for 8-Series
The CL-16 Linear Fader Control Surface for 8-Series combines the simplicity of traditional analog consoles with the power and flexibility of digital consoles. This bespoke control surface features 16 silky-smooth faders, 16 dedicated trims, and a glorious panoramic LCD that is engineered into a 16.3”-wide compact unit which fits in a cart and operates from 12 V DC.

Sound Devices, LLC
Sound Devices NoiseAssist
Use NoiseAssist to suppress background noises such as traffic, generators, HVAC noise, and more. The plugin continuously monitors background noise to give you clean audio for the entire take. Up to eight instances of NoiseAssist are available per mixer-recorder/device. These instances can run on any combination of isolated channels (excluding 17-32 on Scorpio) or bus.
Outstanding Product Award Nominees

**OUTSTANDING PRODUCT POST PRODUCTION**

**Evercast**

*Evercast, LLC*

Evercast

With video chat and HD live streaming in one place, Evercast empowers global teams to create like they’re in the same room. Stream any media source in 1080p with an average latency of 150 ms—and work with your team just as if you were in the same room.

**Focusrite**

*Focusrite PLC*

RedNet R1

RedNet R1 is designed for professionals who need to adapt their audio configurations quickly to suit the ever-increasing demands of the studio environment. Inputs from one of eight source groups (each of up to 12 channels per source, from 32 total channels) can be mixed and routed to up to 12 monitor output channels, formatted from mono up to 7.1.4 surround.

**izotope, Inc.**

RX8

RX8 Advanced continues to be the industry-standard audio repair tool to restore damaged, noisy material to pristine condition. Get full control over your audio, whether it’s restoring high-end frequencies for streamed dialogue, or removing dialogue reverb—all in multichannel up to Dolby Atmos 7.1.2.

**The Cargo Cult**

*The Cargo Cult*

Matchbox

Matchbox is a Change Management solution, aimed at anyone working in post production. It compares two versions of a reel or episode and finds every cut change, VFX tweak, or dialogue slip. It reveals the differences, reporting on the damage, and then retimes your sound mix, compositing work, dialogue scripts, closed captions, and anything else created to picture.

**Todd-AO**

*Actors Mobile ADR*

Record sync ADR on an iOS device. Actors can preview, play back, and record, enabling them to match pitch, performance, and sync, similar to a professional ADR stage. The editor sends encrypted ADR video clips to the actor who then records and sends back time-stamped Wav files.
Return to the Golden Age of Booming

by Lori Dovi CAS

When I got the call with news that I’d been hired to production sound mix Season 2 of the CBS/Disney+ TV series *Diary of a Future President*, I didn’t imagine for a second that the producers had taken my proposal to do a boom-only show seriously.

There were a couple of reasons I felt this was the right way to go. The first and most obvious reason was COVID. Given the premise of this humorous show, a Cuban family in Miami that features many minors and adults, including 12-year-old Elena, who is destined to become the President of the United States some day, limiting the amount of bodily contact seemed the safest approach. I felt a moral responsibility to keep my department, the actors, and others as safe as possible. I had to weigh that there was a 50-50 chance of our show shutting down as we progressed into our shooting schedule. I did not want to contribute to that possibility as we had 2½ months to weather together.

However, I also loved the idea of returning to the origins of capturing sound with booms and plant mics 100 percent of the time—and succeeding with a superior soundtrack. And for anyone who knows about production sound, the challenges of this kind of approach can be daunting at times. We wouldn’t have the luxury of throwing a wireless lav on an actor because the shot seemed impossible, or because the boom operators were lit out, or due to intrusive background sounds, or for dozens of other reasons we have all experienced! We would need to think fast on our feet, come up with creative solutions consistently, and rely on the joint expertise and passion our department possessed to do it this way.

I was also emboldened in my decision to create sound in such an unconventional current manner by remembering that the first noted use of a boom mic was accompanied by Booms as our “coat of arms.”

(L-R) John Sheridan, Lori Dovi CAS, and Alexandra Gallo
much controversy. It was on the set of the 1928 movie *Beggars of Life*. Director William A. Wellman called for a tracking shot of two actors walking down the street. The production sound mixer suggested hiding the mic in a plant pot. Wellman ignored the soundman’s advice, ordering him to put the microphone on a broom-handle and walk alongside the actors just out of the frame. It was a year later that one of Hollywood’s first female directors, Dorothy Arzner, instructed technicians to rig a microphone onto a fishing rod so that actress Clara Bow could move freely on set in *The Wild Party*.

Though I thought I was a bit insane to commit to a “boom only” approach ahead of shooting, I researched other shows like the sitcom *Call Me Kat* and the soap opera *Days of Our Lives*. They use Fisher booms, as do many soap operas and sitcoms. The difference is they are mechanically operated (with expertise, of course), and we would have exteriors to contend with, walk and talks around objects, large speaking ensembles, stage shows with music and dialogue, and a warehouse with a three-second sound delay.

The post producer on *Diary of a Future President*, Arturo Guzman, admits that he was initially “hesitant” when I brought up the idea of making this into a boom show. But having assessed the approach after the first week, he admits he was “Blown away with the results and the sound that was captured. With the right operators on boom—and coordinating with the camera department when breaking frame—you were able to get the best sound.”

Our show simulated Miami, Florida, which meant, for instance, many E Fans on set for wind gags. The DP was intent on the landscape plants, curtains, and shadows moving as much as possible in most scenes. We also shot in converted warehouses with multiple sets built on three warehouse stages. The warehouse walls were baffled—but not the ceilings. On Stage 3, there were two permanent transformers that couldn’t
differences, voice cadences, sound reinforcement applications, room acoustics, background sounds, multiple camera frames, shadows, reflections, last-minute adjustments due to camera or lighting changes, and of course, the E Fans.

Another tool we used that was approved by VFX was dropping in on static simultaneous ultra-wide and tight shots in order to protect the closer sound perspective. We utilized this technique about three times a week. Because we had a lot of background talent, breaking the frame was tricky as we had to keep our microphones clear of their moving bodies. My 1st boom operator, John Sheridan, was an expert in dancing through the background in order to capture the dialogue of the actors, orchestrating the boom as a conductor capturing the impossible. Alexandra Gallo joined that effort as the 2nd boom, working shots contorted in difficult positions and consistently applying sound reinforcement to each and every camera setup.

Our boom microphone and plant mic array consisted of Neumann KMR 81’s and KM 150’s; Sanken CS 3’s, CS 1’s, and COS 11’s; Schoeps CMIT’s; and Sennheiser MKH 50’s and MKH 70’s. We had the opportunity to experience a shooting gallery of microphones during our first two weeks, getting clearer and clearer results relative to what would work and what wouldn’t. The exterior locations in the beginning were our greatest concern, as we generally wire actors for exteriors because of the need for better signal-to-noise ratio, shadows, car reflections, etc.

The Sanken CS 3’s became our “go to” outdoor boom microphone and impressed each and every time. The microphone roll-off at 100 Hz was instrumental in reducing generator noise, air traffic, and vehicle traffic. The brightness and reach of the mic pulled the voices in like no other mic for our purposes. In fact, the CS 3 is a mic that wants loose proximity to the sound origin as it doesn’t perform as well close in—which always made us laugh!

After lots of microphone analysis across sets and by trial and error in our marking rehearsals, our main indoor boom microphone eventually became the KMR 81 halfway through the show. It had the ability to warm

Baffle walls on wheels to help dampen the outside industrial zone noises
up our young actors’ and female voices and had an easy off-axis response for bigger dialogue groups, along with the needed reachability. It also performed very well in “live” rooms, helping to separate the voice from the room delay, since we were working indoors in makeshift warehouses!

The key to succeeding at this type of show also lies in solid communication within the team. Having boom operators who are confident, capable of executing the plan, finessing sound for perfection, negotiating the sound department’s needs with others, and having a passion to deliver led to our success on set. Unlike shows where we mix multiple wireless lavs and focus more on getting the wires quiet, time is now taken to perfect sound reinforcement and eliminate unwanted extraneous sounds while perfecting the cueing of the boom and plant mics in order to produce a more natural soundtrack. The choreography of hand offs from boom to boom to plants and back to booms made mixing more enjoyable with a focus on submitting a natural sounding product to post.

On the second-to-last-day before we wrapped, we had a scene with seven actors speaking in three different zones. John and Alexandra were covering two of the zones and I put a plant mic hiding behind the hand of a statue in the third zone in order to capture the voice of the actor. The idea was that the mic would be painted out. Unfortunately, our background and foreground extras were crossing the mic at the last moment which would make painting difficult.

It was one of those moments when it seems that everyone in the room is waiting for you and everything goes quiet. But it was also a perfect situation for me in some ways. I’d discovered that in the 2½ months of working in a boom and plant mic-only manner, that a lot of this approach was about finessing the hell out of ideas until they could work. I took a deep breath and looked again at the statue. I suddenly realized that it was bending its arm. I quickly grabbed an omni directional Sanken COS-11 mic and placed it in the hollow of the elbow. I couldn’t help but smile at the idea that the Sanken COS-11 is one of the traditional go-to lav mics for actors. But, although I was using a body mic on my boom-only show, it was planted on the replica of human being made out of foam and paint! The irony...

As a sound purist at heart, I believe the origin of capturing sound starts with the microphone head. This is where it all begins. Perhaps the multiple award-nominated production sound mixer Nelson Stoll CAS has it right when he booms many of his own shows with modified microphones.

It’s a wrap now and looking back, it was a renaissance approach that worked masterfully and provided superior sound results. Ironically, it took COVID for the producers to support capturing sound without the use of body mics. The end result was so much more rewarding knowing we did it the old-fashioned way—the way sound began in cinema.
Remote Mixing in the Time of COVID:
User Experiences

by Patrick Spain CAS

For this issue, I’ve been tasked with writing something that would speak to our current motion picture audio state of affairs; the wonderful world of remote mixing!

As of this writing, there seem to be many-a-flavor of hardware and software solutions to undergird our new work-a-day paradigm. That is to say, we as mix teams are generally on our dub stages and our clients are … well … not. To bridge this new physical gap, we’ve all been using some unholy union of Zoom, Google Meet, Skype, Microsoft Teams, FaceTime, good ole’ conference calls, Source Live, Evercast, and/or ClearView. I’m even told the guys and gals in lab coats at Universal’s post wing went so far as to build their own streaming system from the ground up!

In general, but not always, our showrunning and producing interlocutors seem to be in a home office with their trusty laptops and headphones, as well as a menagerie of cats, dogs, progeny, spouses, partners, and—every once in a while—an adult beverage. These are stressful times after all!

The exceptions I have experienced are clients who insist on several iterated QuickTime reviews per show, those blessed with deep enough pockets who’ve booked another stage to hear their playback in a more immersive format than stereo, and the few intrepid-brave-foolhardy souls who are arriving in person for celebrity’s sake, or just to get the hell out of the house.

I first chatted about all this with re-recording mixer Jonathan Wales CAS. He tells me that when the pandemic hit, he was only a few episodes away from completing a series for Netflix and suddenly, he was home like the rest of us. Luckily, he had an ace up his sleeve—Jonathan has an S6 at home!

He was able to close out the season by employing the above tactic of sending repeated QuickTimes for review. However, his next show was another Netflix series, and it was to be an Atmos mix. At first, the thought was he would get the show in shape at home, and then they would review and fix on the stage. But then, the pandemic took a turn for the worse. Lots across town closed up, and before they ever got started, Jonathan knew they would have to “find another way.”

To find this “other way,” he and production landed on Evercast. Due to the proclivities of this particular client, Jonathan knew they were going to have to find a system that was as close to being in the same room as possible. The thought was that the chat and video features Evercast brings to the table would cut down on the
communication issues presented when using other streaming platforms and running a separate video chat. It was an all-in-one program, and the communication controls were slicker. This would cut down on the muting and unmuting and other participants’ playbacks bleeding across the video chat, etc.

To cut down even further on communication issues, Jonathan went a step farther. He patched up his S6’s talkback system directly to the Evercast communications input. He then activated the console’s auto talkback. This meant the mic was always open unless he was rolling; resulting in clearer coms and one less switch to fiddle with when reviewing with his clients.

Now, Evercast’s video delay is sub 200 milliseconds for tight sync, and it can handle 5.1 audio. But to keep everyone in the same “room,” the production sent the showrunners and producers the same pair of headphones, and Jonathan fed the real time binaural foldown of his Atmos renderer to his clients. This way, no one would have to worry about what sort of 5.1 system or setup was on the other side of the stream. This meant everyone on the stream was hearing the best possible 2-track representation of his Atmos mix in virtually the same playback environment.

Another advantage of this system, Jonathan tells me, is that once an Evercast meeting is set up, the meeting “room” is persistent. So, attendees, up to 10 at once, can come and go. Furthermore, the room’s meeting is not dependent on a specific attendee “moderating” the interaction.

The one roadblock to a successful screening that Jonathan and company could not control was (and continues to be) the personal internet connections of his “audience.” (I think we have all come across this issue.) The feeling was that if you’ve done all this work, but an audience member’s internet isn’t having a good day, then you may be wasting your director’s, producer’s, or showrunner’s time; a big no-no. The fix was to send a QuickTime at the end of the day for people to screen at their own leisure.

**SAM CASAS**

I next chatted with CAS Associate member Sam Casas. Sam’s mixing is predominantly focused in the advertising world. His office and studios are in Santa Monica, though he lives in Studio City. Back in March when the pandemic took that turn for the worse, he began working primarily at his home studio. He had fortuitously built one to accommodate the many late-breaking tweaks from his westside clients.

At one point, a big ad campaign for a large corporation came up. One of the creative directors wanted to be able to come into the studio and hear the mix “properly” in a studio environment. So, not wanting to disappoint said client (and not wanting to possibly endanger himself and his family), Sam and company came up with a plan. They would use Source Elements Source-Live Pro and its Remote Transport Sync (RTS) function to effectively play back his session in Studio City to his client in Santa Monica.

In essence, the RTS system allows one to sync up two studios; not too dissimilar from the old days of sending timecode down an ISDN channel to drag a session halfway across the globe. Only in this case, Source-Live Pro is doing all the work sans TC.

It did take about two days for he and his co-workers to figure out all the “mental gymnastics” to get the thing working smoothly. For example, one of the tricks to getting the sync as close as possible in the two locations was to disable the delay compensation on both rigs during these remote playbacks. Furthermore, all the Pro Tools systems in the Santa Monica location had static IP addresses, allowing Sam to easily remote in and make changes directly on the local rig and transfer files between systems when necessary.

I’m told, “All this worked out great!” The client was happy in a room that they were familiar with and comfortable in. All communication was done via Zoom, as there were others listening along, and the client was able to “fine-tune adjustments,” working as if they were in the room together.

Sam also had another trick up his sleeve, one I had not heard of until we spoke. He tells me the above situation is not his normal remote mixing technique. Generally, because it is short form material he is presenting to his
clients directly through Zoom! This is all made possible through the use of Source Elements Source-Nexus in conjunction with a small hardware box from Blackmagic called a “Web Presenter.” This is a small box that you plug in-between your video card’s output and your projection/TV and back into that same video card’s input. This makes your computer think that this returning video feed is just another web cam that can be fed to your video chat of choice; in this case Zoom.

Since I was conducting this interview via Zoom, Sam showed me how it worked. His playback video showed up as just another Zoom window that I could then pin and follow along with. He would then use Source-Nexus to route the 2-track mix into Zoom. I was amazed at how well this worked. The audio quality of Zoom is, shall we say, not the best... And, for this reason, this system works fine for general notes, but like others I interviewed, Sam would send the final version as a QuickTime for clients to do their own “final” screening with.

KEITH ROGERS CAS

I also spoke with Keith Rogers CAS. He tells me that when the pandemic hit and shut things down, he was in the middle of mixing Season 3 of Westworld. And, as luck would have it, the picture department was already using ClearView to present its picture to the different players in the production. So, Keith and his team had direct and near immediate access to the hardware necessary to run the system.

Keith shares: “We were operating it this way; the production would invite the people they wanted with the appropriate link and everybody would log on. We found that it was only 2-track at the time and we were sending them the LtRt. It was early on, before people were paying close attention to their internet speeds, and we had a lot of issues with that. In fact, within ClearView, we could see how well an individual’s internet was working and saw that some client systems were barely holding on!”

This lack of bandwidth was creating lots of notes like “Check right here, there seemed to be a drop out. I’m sure it was my ClearView, but we should check.” The thing was, it wasn’t a ClearView issue, it was the personal ISP connections of the players involved with the episode unable to keep pace.

“Also, there was a delay. So, what we would do, and still do, is have a conference call! We’d get everyone on the line, say ‘Hi,’ and I’d play 10 seconds of the show to make sure everyone was getting it. I’d mute the stage and say through the speakerphone, ‘Hey, we’re gonna play this section for you.’ At this point, their computer was there for playback and everyone had headphones. Then they would jump back on their phone or other device to give or discuss notes. We found that this was a good way to keep the work flowing, and we’d have an assistant producer on the phone keeping a master list of notes for us to work through.

“We have also had situations where the sound supervisor was remote. And in that case, we have been using the same conference call technique. So, while we are working, he or she is following along with the stream and will cut in on the phone and stop us with a note here and there.

“Because of the pandemic and so many productions trying to keep their shows afloat, the physical ClearView boxes started to become scarce very quickly. As a work around, the engineering staff at Universal’s post-production department created their own streaming system! They’ve been calling it Studio Post Streaming, and that’s what we have transitioned to using now. It works similarly to other systems, but it has its own stand-out characteristics. For example, it has a cool feature that’s a Playback mode and a Review mode. When we’re in Playback, it is the highest resolution picture and sound we can send, and in Review mode, it references a lower quality picture or stream that will react more quickly when we are really rockin’ and rollin’ with the transport. It’s also constantly being updated by our staff, so it’s adding goodies all the time.

“So, that’s how we’ve been managing it and, amazingly, our clients have been really happy. I think they are blown away that we are able to do it at all. I’m curious if it’s going to turn into a function in the future where we’re always going to have it available for clients.”
JOHANNA STEIN
I also talked with one of the producers I’ve been mixing with entirely during the pandemic, Johanna Stein, and asked if she would relate how things have been going from her side of the Zoom. I thought it would be interesting to see a client’s take, and Johanna kindly sent the following.

“As a writer-producer who moves from project to project, between live action and animation, I’m used to being fairly flexible with my working environments. But I won’t lie—the prospect of continuing production on our CG action-adventure-musical series (Madagascar: A Little Wild) was pretty daunting. We were already operating on a very ambitious schedule, and going into lockdown we weren’t sure we’d be able to keep up the pace.

“As we discovered, the process of producing an animated show turns out to be very well-suited to remote collaboration. I still see our crew as much as I did before, only now I’m seeing them in their home offices with their pets, kids, spouses, roommates, and all of the occasional chaos (usually pretty charming) that ensues. I miss being in the same physical space with the team—there’s something special about creative collaboration when you’re all in the same room—but we’ve found a whole other level of camaraderie and intimacy, the kind you get from riding out a storm together.

“Practically speaking, the biggest question for me was the sound. Would we be able to get records and mixes done to a level of quality that would be good enough to broadcast? The answer (thank HEAVENS!) was yes! The mix process takes a bit longer—we have to account for the 20- to 30-second delay that occurs whenever we want to play back a clip through Source-Live—but for me that probably works out to what my commute to the stage would have been. I wondered if I would need to upgrade my internet but, aside from the occasional drop-offs (due to my daughter accidentally tripping over my ethernet cable), my connection has been great. And the proof is in the finished episodes—they sound amazing. The quality of the final result has not been adversely affected at all.

“Producer Johanna Stein

“And while I do miss the world-renowned snacks at Advantage Audio (my kitchen pales in comparison), there are some advantages to the remote setup. One is that the sessions are more accessible to the entire team. For example, last week I wanted to get some feedback on a complicated musical cue. I sent a group chat to our music supervisor Vivian de Aguiar, line producer Mercedes Salazar, and supervising producer Saul Blinkoff. They were all able to drop into the session immediately and participate in the solution in real time, as opposed to our having had to play a literal game of telephone.

And the virtual mixing stage was invaluable for me last summer when my father was ill and I had to be in Canada for a few months; I don’t know that I would have been able to spend that much time with my parents had we not already had this process worked out.”

CONCLUSION
Well, I kind of think that says it all. As Keith wondered about and Johanna spoke of directly, I think the solutions that our industry has been building together to get through this pandemic will be part of a new normal for us all. The AP sitting on Keith’s conference call might just be a showrunner of the future who is totally comfortable with the remote mixing process because that’s all they know!

This opens up all sorts of questions like: Should I build my own stage? Do I need to be in LA to do this? Can I live somewhere cheaper, less dense? Do I need to commute for two hours today? Do I need to be on a stage to get new clients? And so forth.

Lastly, in an aside during our interview, Jonathan Wales remarked on how “proud” he was of the industry during this time. He was referring to all the calls he’s had with old friends and co-workers who, although working for different outfits, were all looking for similar solutions to keep their operations—and more broadly, the entire industry—afloat. The calls were all along the lines of “I’m trying this and this,” “What are you doing?” and “How are the clients reacting?” It’s nice to hear that in such a competitive field, we are still willing and happy to help our fellow post audio brethren.

Stay safe out there and keep up the good work!
Overcoming Atmos Anxiety

by Bob Bronow CAS

Since its inception in 2012, Dolby Atmos has made its way from the big screen to music, video games, and home theater. Home systems with up-firing speakers have made it easy to get Atmos into your living room without mounting speakers on the ceiling. As a result, more and more streaming services are asking for Atmos mixes on their episodic series and movies. Even those that aren’t currently streaming in Atmos are heading in that direction.

A skillset that was once the purview of theatrical mixers is now being asked of nearly all episodic television mixers. Just the thought of this can create “Atmos Anxiety.”

But even the most accomplished mixers, at one point, had to do their first Atmos mix. We’re going to find out how three of them, Gary Bourgeois CAS, Matt Waters CAS, and Adam Jenkins CAS, transitioned from traditional speaker-based formats to an object-based format. They’ll also share how they set up their sessions so that immersive mixes can be completed on a tight television schedule.

GARY BOURGEIOS CAS

When did you begin mixing television in Atmos?
I started mixing Atmos in features and then broadcast when it became a delivery requirement. I remember thinking, “There’s nothing wrong with 5.1. A great 5.1 mix can really tell the story.” Doing some pretty good-sized features in Atmos, I said to myself, “You could overdo this in a second!” I realized that it applied to broadcast even more so.

How do you approach a broadcast mix in Atmos?
For broadcast Atmos, I start with the beds. I do a 7.1.2 dialogue bed and a 7.1.2 music bed. In my template for the dialogue and music, I only have maybe six objects. I want the effects mixer to have as many objects as they want. So, I can...
be pretty specific about what I want to put in the objects. I just drop things down to the object tracks and put them wherever.

**What things do you need to watch out for?**

I don’t like taking things, especially dialogue (whether it’s Atmos or not), and having it go too far dynamically because then you take the focus away from the storytelling and it’s not cohesive. It’s not sitting in the soup. I always say, “I want the alphabet sitting in the soup.” So, on dialogue, you don’t want it to be too specific with the objects so it blends.

**Talk about your broadcast Atmos workflow.**

In broadcast, you have to work efficiently. Your template needs to be efficient. Your plugins need to be efficient. Your whole workflow needs to be efficient because you’ve only got so much time. Maybe you’ve only got a couple of days to mix so you have to be efficient.

As a music mixer in Atmos, it’s important to be consistent with the music stems that you’re given. The instruments need to be on the same tracks for every cue. I will put most of my music in the 7.1 music bed. But I want to decide which instruments I place outside of the bed. I want those instrument tracks to be consistent.

That way, I can be efficient with my template and my setup. So, the question of Atmos slowing you down no longer exists because I’ve planned for that.

**Do you use the size capabilities when working in Atmos?**

With music, you don’t want to get so specific with the objects that something sticks out and catches your attention. You want to make sure that it blends. I widen out the objects so that it blends.

**What do you think are the most important things a mixer needs to know when beginning to mix in Atmos?**

Every second that I mix I’m thinking, “What’s my opportunity? Where’s my opportunity? Should I take this opportunity?” It’s all about opportunities. I can make statements. If you’re mixing a crash, maybe we can hit the crash hard and back off the crash for the reaction.

Some mixers aren’t using a mixer, they’re using a mouse and the track just sits there. They’re not grabbing opportunities between the dialogue. When a guy says, “I love you” and moves in for the kiss, there’s no more dialogue going on! Go for it with the music! That’s your opportunity! However, just because I’ve got a lot of bells and whistles, it doesn’t mean I have to use all of them. If I lay out a big spread for dinner, I’m not going to eat everything that’s on the table. The guests are going to pick and choose.
Some streaming services will ask for theatrical Atmos, which is different from television Atmos. It will never play in a theater, but they still want a theatrical Atmos deliverable. I tell them that will cost more in the deliverables. You’ve got the theatrical deliverables but then you have to do the home theater Atmos deliverables, in which I generally find you need to bring the surrounds down a bit. And then you need to QC the 7.1 and the 5.1 because the 5.1 is what [most] viewers are going to listen to. So, we’ve got to do this on every level.

**You’ve been working in Atmos since it was introduced. What do you wish you had known back in the day?**

I wish I’d known that in Atmos, I didn’t need to be in the uppers. When I started mixing in Atmos, I’d just make everything high. Nowadays, if you look at my renderer, there will be a lot more content mid to bottom.

My first feeling was, “If I’m mixing it in Atmos, I’ve got to make it high. That’s really cool!” But, it’s just as cool to be low in Atmos.

**Can you talk about an Atmos mixing moment that really showed how powerful it was?**

One of my favorite things I did was in *Black Sails*. They were in a cave and the camera was trained on a stump. They had three characters walking from the back into the shot. One character had a peg leg and [was holding] a lantern. They walked into the shot and put the lantern on the stump and, I swear, I cried because of how cool and how fun that was. Because of Atmos, I could have every footstep in a different place and the lantern moved as it came over by our head and placed it on the stump. Those were bad-ass and those weren’t high!

**Any words of caution for the new Atmos mixer?**

When you start making everything an object, it can take the cohesion out of the track. You and the other mixer have tried to make this glued piece. It’s easy in Atmos to make it unglued if you try to get too tricky with it.

**What are some advantages you’ve found working in Atmos?**

I just think about how easy it is to be creative now whereas, just 10 or 15 years ago, you had so much more to worry about.

One of the biggest benefits of Atmos is music in Atmos. I think it’s amazing. Also, having the full-range speakers. If you’re flying a plane overhead front to back in 5.1 or 7.1, it flies over your head and loses all of its low end. What happens is, it should get louder. When I’m in Atmos, that thing can rock the world!

**How do you approach a broadcast mix in Atmos?**

The misunderstanding a lot of people have is that mixing in Atmos is a totally different beast. Yes it is, but as far as the workflow goes, it can be the same old beast we’re used to.

We did the first season of *Daredevil* 5.1 mixes in four days and everyone was very happy with it. Atmos came along and Netflix wanted to do everything with the highest quality. They asked, “Can you do this? How much more is it going to cost? Can we still do this in four days?” Knowing that most people were going to be listening to this on their devices, they were going to hear this in 2-track. We assured the people at Marvel and Netflix that we could get this done in four days.

So, I took my template and added 24, what we called drag tracks (object tracks). I would have 24 dedicated background tracks and 24 dedicated FX tracks that would be just below one of those sections and those would be our Atmos tracks. I’d spend the morning of the first day of the mix doing backgrounds. If a scene had four stereo traffics, a couple of winds, and city rumble, I could just go through and pull down what I wanted. I could even mix the scene first and then move elements down to the object tracks.

We did run into things with printmastering. We had to tell our client that it was going to take another pass because there are times when going from Atmos to 5.1 that you can have issues. If a sound is off the screen, it’s in the back of the room. So, a subtle move in Atmos suddenly becomes a mistake in 5.1. It’s not so bad in 7.1, but in 5.1, as soon as it comes off the front speakers, it’s in the rear of the room.

So, we always did our playbacks in Atmos and then we would play back the 5.1 and the 2-track because the number of people who will be listening in 5.1 is much higher than those who will be listening in Atmos. And, a vast majority are listening to the 2-track because they’re listening on their devices with headphones.

**What are some advantages you’ve found working in Atmos?**

Working in Atmos is great because you’ve got so many sound fields to work with. If I want to hear someone walk over my head, that’s what Atmos is so good for. It’s also great for music.
FOR YOUR CONSIDERATION

OUTSTANDING ACHIEVEMENT IN SOUND MIXING
MOTION PICTURE—ANIMATED

Vince Caro, CAS, Ren Klyce, David Parker, Atticus Ross,
David Boucher, CAS, Bobby Johanson, CAS, Scott Curtis

“So authentically, lovingly executed, you can feel it.
It’s all gloriously lived-in, which is fitting for a film that’s an ode to life.”

DAILY TELEGRAPH, Robbie Collin

“Pixar’s jazzy existential celebration is one of the studio’s very best.”

INDIEWIRE, Kaleem Aftab
With some adjustments to your template, you can have objects available for music. And, as far as putting reverbs in the uppers and getting separation, you can have dedicated reverb tracks that go to your ceiling or walls.

With slow-moving sound effects, that’s where Atmos is the champion. A quick plane fly-by moves from the front of the room to the rear of the room in a frame. It doesn’t matter if you’re in 5.1 or Atmos because the image doesn’t last long enough anywhere so it’s not that different of an experience. Slow, small things like a guy walking around in the upstairs apartment or a helicopter that’s slowly moving is where Atmos shines.

With Atmos, you can be extremely specific where sounds are placed. We’d never done that before. With 5.1, things were either on the screen or in the room. With Atmos, you can put things where you never could.

**How different is mixing in Atmos?**
For mixers who are not working in Atmos, it’s not a large change. When going from 5.1 to 7.1, all the reverbs changed. So, that’s something you’ll need to add to your template.

When DTS and SRD came out, people were going nuts with it. “Put everything in the subwoofer and get those things behind us!” But then you realize that what you’re doing has to support the story. Just because you’ve got it, doesn’t mean you have to use it. It has always been this way. Whether you’re working in Dolby Stereo, Atmos, or Mono, it has to support the story and the picture.

**What about your reverbs?**
I’m using 7.1 reverbs and sometimes I’ll have a dedicated reverb upstairs for my objects. It can open up the mix. If there is a disconnect between the sound and the reverb, then you need to get reverbs up into the objects. 99 percent of my reverbs are 7.1.

**What are some things to watch out for when mixing in Atmos?**
Realize that the 5.1 will never sound exactly like the Atmos mix because 5.1 isn’t Atmos. If it did sound exactly the same, there would be no need for Atmos.

With some experience and setting things up right, it’s very easy to prepare things for Atmos, mix them in Atmos, and get your 5.1’s to sound good. It can be an intimidating thing because people go into a big theater and say, “Oh my God, this is Atmos? We can’t do this! I’ve got to put something in every speaker and I’m going to have to cut 10 times as many backgrounds…” No, your sound still needs to support your story. Atmos can help with that and make it a grander story.

**What is your approach with monitoring the deliverables?**
The end product of our work is the masters. We can’t let masters leave the room without listening to them.

When you’re working in the 5.1 world, you get notes, do fixes, the clients leave, and we’re done. Now we need to tell them, “When you guys leave (and you’re more than welcome to stick around), we’ve got to listen to the 5.1 and the 2-track because we’ve never heard them.”

**What do you know now that you wish you’d known when you started mixing in Atmos?**
I realized how effective Atmos is for music.

Also, fast bys (.25 or .5 seconds) like arrows sound no different as objects than they do in the 7.1 bed, so I save time by not moving the arrows to an object track.

Don’t keep things only in the top of the dome. Split speakers instead of using discrete speakers. Use more of the sound field for effects and backgrounds.

You can use a phantom image to use the middle height of the room. It really opens up the room as opposed to having something only on the wall or only in the overhead.

Taking a chopper and bringing it a little bit lower in the room really makes it more effective.

Common Thoughts on Mixing in Atmos for Broadcast

- Don’t overdo it. Remember, everything we do serves the story.
- It’s not too different from mixing in 7.1.
- You’ve got upper speakers, use them wisely.
- It’s great for music.
- While the native Atmos mix might not take longer than a 7.1 mix, you must listen to the re-renders for 7.1, 5.1, and stereo.

Hopefuly, getting some insight from these Atmos pros has taken a little anxiety out of getting into Atmos for broadcast. If you want to get your hands dirty but don’t have access to an Atmos stage, download the Dolby Atmos Production Suite with its 90-day free trial. It’s a great way to get started. https://developer.dolby.com/forms/dolby-atmos-production-suite-trial/
“IT’S AN INDISPUTABLE CLASSIC.”

FOR YOUR CONSIDERATION
OUTSTANDING ACHIEVEMENT IN SOUND MIXING
TELEVISION NON-FICTION, VARIETY OR MUSIC SERIES OR SPECIALS
JUSTIN RATHBUN, TONY VOLANTE, ROBERTO FERNANDEZ, TIM LATHAM

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Playing Well with Other Production Departments

by Peter Kurland CAS

“There’s a war on between sound and wardrobe and I’m the battlefield.” - Tommy Lee Jones

Entertainment is a collaborative art. Even Mozart needed someone to help him carry the piano. Filmed entertainment requires many more skilled people, each with an interest in excellence in their craft and, hopefully, also in the overall project. This often means compromising in one’s quest for perfection so that others can further their own work. When done well, this can make everyone’s work better. I have often thought sound people get more “opportunities” to compromise than most.

I believe the best way to start this process is in pre-production. Ask to be included in technical scouting. Not only can you get a sense of unusual needs, but it’s a great time to meet all the other department heads and to hear the director and DP explain their vision and plan for the scene. When a special need comes up, it can often be discussed then, without the pressure of limited production time. Sometimes it’s necessary to request to be included in the production meeting. It’s another great opportunity to informally meet other crew and to see the expectation for each shooting day. I like to follow up with questions by phone or email, accompanied if necessary by special requests for other departments to allow time for them to be considered and worked out.

This includes POST SOUND. Obviously, production sound has a symbiotic relationship with post. A good relationship with continual communication can save time for both, and can greatly enhance the final product. Production sound needs to know what post needs. Post can make requests from production that carry extra weight. It can make the difference when production then asks for time or resources to capture certain effects or other wild sound. Matched expectations for recording standards in terms of technical specs or levels can make everyone happier. This discussion should start well before production begins.
Even within our own department, there’s often a need to weigh the requests of the production mixer with the needs of the boom operator. When I was booming, it was frequently my job to interpret the demands I got through my headsets into practical frame lines or socially acceptable messages to the director about sound issues. As I moved to mixing, I was often the source of these requests. Randy Johnson, the boom operator I have long collaborated with, is a master of translation. He can hear me say over the private line, “This is completely #$?!#%$. Tell them to *%#!>” themselves!” and then he quietly asks for foot foam on an extra.

WARDROBE is a department we work a compromise with every day. If we can develop a friendly working relationship, there’s a lot they can do for sound, and by extension, the movie. On Wild Wild West, Will Smith’s costumer, Robert Mata, was able to work with Steve Bowerman CAS to semi-permanently install a wireless mic in Will’s hat with the capsule neatly slotted into a gap along the forehead. This eliminated rewiring every day and sometimes gave a better mic position than even the boom—which was hard to get pointed below the hat brim. Recently on The Tragedy of Macbeth, Randy Johnson went in days before production to work out permanent lav positions with Denzel Washington’s personal dresser, Craig Anthony. The mic was sewn into MacBeth’s coat so we could just plug in the transmitter daily before he put it on. This helped Denzel to concentrate before any scene possibly requiring a radio mic. And something similar was done for Lady MacBeth for her sleepwalking scene. The costume department sewed a small pocket into her gown so Frances McDormand wouldn’t be distracted by it. All of this requires some forethought and prep time. I doubt the stitchers would have been as happy to have to do these things on short notice.

We also have to work closely with CAMERA. Evolving technology means reinventing sync, often with sync boxes needing to be attached, jammed, and re-batteried throughout the day. This has become a major task for the utility person. Developing a close working relationship with camera assistants and prepping with them makes this a much easier enterprise, especially when they can cooperatively work out the most efficient plan. The DIT’s and data managers can greatly improve the sound mixer’s day when workflow is planned in advance so breaks are efficient. We can help camera, too. I recently listened to cinematographer Roger Deakin’s podcast on the difficulties now with RF transmission for focus and remote operation, as well as how to best manage digital files. I couldn’t help but think these are issues the sound department has been successfully negotiating for decades. And now that so many camera and lighting devices are wireless, we can help in frequency coordination and tracing issues. He mentions the great help it is to have thorough camera tests to work out workflow and sync issues. Helping camera in this way also helps us. And besides, they usually have extra Velcro when we need it.

Prep time is the key. Often, the sound department has much less prep time than others. I believe this is a mistake. So many times, with good communications, I’ve been able to request things in advance that would be impossible on the day. Location scouting is an invaluable help. On Inside Llewyn Davis, reducing background noise was critical because almost all of the music was to be shot live. In scouting, I found that a key set for a quiet music scene was next to a major road. Scouting along with a rep from CONSTRUCTION, I was able to ask for the window to have an extra layer of glass—which helped enormously. On the same scout, we heard toilets flushing above our main music location. This allowed LOCATION time to prepare so those facilities weren’t needed on the shooting days. On another show, one look at the metal roof on the building planned for cover sets led to covering it with hog’s hair filter material. Locations had determined the building was quiet, but they hadn’t listened in the rain, which was the only time we’d ever need to use it! Similarly, on For Love or Money, our primary stage was located in an old building that was on a noisy part of Manhattan’s.
Tenth Avenue facing the river. With the encouragement of Barry Sonnenfeld, a very sound-conscious director, construction agreed to build a second acoustic wall along the back of the set. Not cheap, but easy to do well in advance. And much cheaper than replacing dialogue or doing retakes for heavy traffic or ship horns.

On *The Addams Family*, Barry also asked me how we could reduce the HMI fan noise from the dozens of 12K’s in the perms above the cemetery set. There weren’t enough head cables available to move the ballasts outside; only enclosing them would help. This meant building little houses, each with a remote controllable AC unit tied to the bell system. It wasn’t an easy task, but construction pulled it off, making Barry much happier on the days we shot there.

**ELECTRICS** is another department we can happily interact with. From simple things like getting power daily, to bigger favors like work lights or borrowing of extension cords, they can be of great help to Sound. On *The Tragedy of Macbeth*, loud fans on the moving lights led (no pun intended) to Michael Bauman, our gaffer, sorting instruments by loudness and using the quieter ones closer to the actors. Even better, he arranged to unplug the loudest instruments when not needed, as these lights have a fan that doesn’t go off when they’re dimmed to zero. In a huge open stage, the cumulative fans made much more of a hum than one would expect in the Middle Ages.

**GRIPS** are very important. These tireless soldiers provide support for almost every department. From courtesy sunshade to portable “wardrobe racks,” the grips help everyone. For Sound, they often have extra furniture pads and stands for acoustic control. With some advance notice, they can rig up quite a lot of them, especially overhead. It’s best to ask well upfront so they have time, resources, and the request doesn’t interfere with their primary work for the DP. A good boom operator is friends with all the grips. Grips can set a flag to help with boom shadows or provide an opportunity for us to lay carpet before the dolly track goes down.

Each department knows so much more about what options they offer. They just need to be politely asked—as far in advance as possible.
been destroyed. Often, with no notice, the standby painter will paint a section of tape to miraculously match a baseboard or tablecloth so that a cable can be hidden right in the shot. Greens can bury a plant cable when needed, or even mask the sound cart. Of course, they are the original collaborators with plant mics!

On my first day as a mixer on a big studio film, we had a noisy paper bag interfering with dialogue. Steve Bowerman CAS, who worked with me often before his illustrious mixing career, and who already had much more experience than I had, immediately asked PROPS to fix the problem. Easily done. I have since learned about rubber grocery bags, rubber ice that doesn’t clink, and museum putty to quiet silverware and glasses on trays. Sometimes an EFFECTS department can switch to wafters or move closer with a lower speed to reduce noise from fans. Each department knows so much more about what options they offer. They just need to be politely asked—as far in advance as possible.

I can’t leave out TRANSPORTATION. I know it’s within their job description to help get us and our gear to and from work, but good communication with the drivers can expedite this, particularly when we need to transfer to stake beds, or when there is an equipment issue and replacement gear is needed. I’ve also been assisted by being set up in a follow van for running shots. It doesn’t hurt to be nice to both transpo and LOCATION if you want your truck near the set.

Finally, a little about PRODUCTION. They affect our workday more than anyone else. A cooperative AD can make sure sound has time to do their work, keeping us from interfering with grip and electric as they do theirs. They can often give us notice about special needs, like playback, telephone setups, or audio cueing that may have been determined in meetings before we started. Of course, this helps them, too. Production, with location, can also provide intermittent traffic control and strong lockups. And we need to have their help to record wild lines, voiceovers, and the ever-elusive room tone.

We all work together to make a movie. These are a few of the things other departments do to help us. We need to return the favor whenever we can. On Wild Wild West, we assisted the animal trainers by placing a miniature speaker in Ted Levine’s fake Victrola-styled earpiece so the little dog would listen to it like Nipper in the RCA Victor logo. We often put in extra time or limit moves to get horses used to the boom. This applies to babies, too.

When we can, we go beyond sound work to build community on set. Some mixers are asked to play music during setups. Kelly Doran, the utility I work with often, has a whole system devised with flags on the cart to announce the Martini Shot and, often, the Lou Nidus. Kay Colvin, in her free time during her utility career, knitted ear cozies for all the Comtek headsets, often using colors or materials selected for each user.

Sometimes we contribute merely by giving up on certain things. On No Country for Old Men, we stood down so the trainers could yell, “Scooby, Scooby, Scooby!” to make the pit bull chase Josh Brolin. But usually we trade with our primary currency—batteries!
Sound Ergonomics for a Long Career

by CAS Associate member Bryan Cahill and Dr. Elliot Smithson

“Ergonomics (or human factors) is the scientific discipline concerned with the understanding of the interactions among human and other elements of a system, and the profession that applies theory, principles, data, and methods to design in order to optimize human well-being and overall system performance.”
—International Ergonomics Association Executive Council, August 2000

From sciatica, shoulder impingements, Carpal Tunnel Syndrome, neuropathy, plantar fasciitis, patellar tendinitis, tennis elbow, and more, most of us have experienced MSD’s or musculoskeletal disorders acquired on the job. The problem is compounded by underreporting of injuries due to fear of negative perceptions and repercussions. This underreporting causes many small problems to be ignored until they become large problems requiring loss of work or even permanent disability. There are actions however, we can take to decrease many of these injuries.

I’m Bryan Cahill and, last fall in my capacity as Chair of the Injury Prevention Committee of IATSE Local 695, I had the opportunity to collaborate with Dr. Elliot Smithson DPT, PT, MS, ATC, EMT-B, on a webinar dedicated to stretching and strengthening exercises. For this article, Dr. Smithson and I are partnering again to provide a comprehensive look at the subject of ergonomics and injury prevention.

SPECIALIZED EQUIPMENT

The image on the left demonstrates the ideal setup for computer use. Setting up your workspace as a mixer or re-recording mixer with the same ergonomic principles will help keep your body in alignment, reduce excess strain, and prevent injury. Thousands of devices are available to improve ergonomics for office settings. Many of those tools translate directly to sound work, while others are unique to our needs. For production sound mixers, there are a number of boutique designers considering ergonomics from the concept stage of their location sound carts.

Chris Parker of Parker Production Carts is using a modular approach where components can readily be moved up or down based on the ergonomic needs of the sound mixer. He wants to have everything you would need to see during a take at eye level. This can prevent forward head movement and slouching, which causes the head to effectively double in weight. Chris believes that an ergonomic, organized work space not only increases career longevity, but makes one a better mixer.

Matt Bacon of SOUNDCART.audio is creating lightweight, durable, and attractive carts. His MiniCart Max is height adjustable and can easily be converted from a sitting to a standing cart.

Eric Ballew’s SuperZuca carts are lightweight and sturdy and customizable. For utility sound techs, Eric is creating what he calls a “smart cart.” These motorized, remote control follow carts will have a towing capacity of 1,500 to 1,800 lbs. They are powerful enough not only to get a follow cart up a steep hill but can tow the mixer’s cart as well.

Although cart design is not a concern for re-recording mixers, the same ergonomics apply. All mixers should, when possible, use an ergonomically designed chair, mouse, and keyboard. This, along with having your mixing console and computer monitors at the appropriate level, will help reduce injuries related to repetitive use.

In discussing the issue with Karol Urban CAS MPSE, she pointed out that re-recording studios are ergonomically designed for an average-sized man and that the studio monitors are intended to focus the sound to a very specific point. For Karol, this means bringing a foot rest with her so that she can properly position the height of her chair and still maintain contact with the ground. In researching this article, I have found that there are many adjustable foot rests available.
**BOOM OPERATORS/BAG MIXERS**

**GENERAL INJURY PREVENTION PROGRAM**

**Streching Strengthening**

**UPPER BODY STRETCHES - 30S HOLDS X 3**
- **UPPER TRAPEZIUS STRETCH**
  - Place your hand behind your head, gently pull your head towards the opposite side with the help of your other arm.

- **LEVATOR SCAPULAE STRETCH**
  - While standing in a doorway, place your arms on a door jam, bend the front knee until a stretch is felt along the front of your chest and/shoulders.

- **LOWER BODY STRETCHES - 30S HOLDS X 3**
  - **POSTERIOR CHAIN STRETCH**
    - While seated, place your feet flat on the floor, bend your knees, and lean forward until a stretch is felt in your hamstrings.

**UPPER BODY EXERCISES - 15 REPS X 3**
- **SERRATUS WALL SLIDES**
  - Place your forearms and elbows on your hips, keep your body straight, and slide your upper body along the wall.

- **SERRATUS PUSH UPS (PROGRESS TO PLANK)**
  - While holding an elastic band, stand with your feet shoulder-width apart, bend your arms, and push your body up.

**LOW BACK STRETCHES - 30S HOLDS X 3**
- **LUMBAR ROTATION STRETCH**
  - While seated, place your feet flat on the floor, bend your knees, and lean forward until a stretch is felt along the side of your body.

- **LUMBAR SIDE STRETCH**
  - While seated, place your feet flat on the floor, bend your knees, and lean to the side until a stretch is felt.

**LOW BACK EXERCISES - 15 REPS X 3**
- **DEAD BUGS**
  - While lying on your back with your knees bent, lift your pelvis off the floor, extend your legs, and lift your head off the floor.

- **CRUNCHES**
  - While lying on your back with your knees bent, make a straight line with your body, lift your upper body, and lower it back down.

**UPPER BODY STRETCHES - 30S HOLDS X 3**
- **UPPER TRAPEZIUS STRETCH**
  - Place your hand behind your head, gently pull your head towards the opposite side with the help of your other arm.

- **SCALENE STRETCH**
  - While standing in a doorway, place your arms on a door jam, bend the front knee until a stretch is felt along the front of your chest and/shoulders.

- **LOWER BODY STRETCHES - 30S HOLDS X 3**
  - **PIRIFORMIS STRETCH**
    - While sitting in a chair, cross your affected leg over the other leg, bend your knee, and pull your foot towards your chest.

**UPPER BODY EXERCISES - 15 REPS X 3**
- **RESISTANCE BAND WALLS**
  - Stand with your feet shoulder-width apart, grab a resistance band, and bend your knees to pull the band.

- **RESISTANCE BAND REVERSE FLIES**
  - While standing, grab a resistance band, pull it towards your chest, and lower it between your legs.

**LOW BACK STRETCHES - 30S HOLDS X 3**
- **LUMBAR ROTATION STRETCH**
  - While seated, place your feet flat on the floor, bend your knees, and lean forward until a stretch is felt.

- **ABDOMINAL STRETCH**
  - While sitting on a chair, cross your affected leg over the other leg, lean forward, and pull your foot towards your chest.

**LOW BACK EXERCISES - 15 REPS X 3**
- **BIRD DOGS**
  - While lying on your back with your knees bent, lift your upper body off the floor, extend your legs, and lift your head off the floor.

- **BRIDGING**
  - While lying on your back with your knees bent, lift your pelvis off the floor, extend your legs, and lift your upper body off the floor.
The sound crew members with the most unique ergonomic challenges are boom operators. Working for extended periods with arms held overhead is unnatural for the human body. As takes get longer, injuries are increasing exponentially (I suffered a rotator cuff tear in 2018). Still, there have been many recent ergonomic innovations that, while not designed specifically for our industry, can also benefit boom operators.

Devices known as exoskeletons are being used around the world in manufacturing, warehouse, and even in surgical settings. I have personally tested equipment from seven manufacturers. While some are better suited to our needs than others, the best can noiselessly assist in supporting the load of a fishpole boom with little impediment to mobility. I have written extensively on this subject and own an exoskeleton that has become part of my kit.

While optimizing our work environments is a great start, even with the latest and greatest tools, we need to train and condition ourselves to optimize the ergonomic benefits. In this area, Dr. Smithson has a great deal of experience and will now share his thoughts.

**ACTIVE ERGONOMICS**

Since ergonomics at its heart is about optimizing efficiency of movement, there are ways we can combat certain movement patterns seen in the industry that are detrimental to that goal.

Let’s begin our deep dive into injury prevention by breaking down the concept of ergonomics. Before we speak about specifics, it’s important to cover these tools and how they relate to optimizing your movement while you work.

These tools that we can use to maximize our ergonomic efficiency include: Stretching, Strengthening, Posture, and Awareness

**STRETCHING AND ERGONOMICS**

What is it?
The first thing most people think when the topic of injury prevention comes up is stretching. It may seem obvious, but it’s important to clarify exactly what we mean when we talk about stretching. Stretching is the act of taking a muscle through its available range of motion to lengthen it. While stretching can be an incredibly useful tool for preventing injury, it only treats the symptom of the problem and not the root cause.

Why is it important?
As a general principle in physical therapy, tight muscles are caused by weak muscles. Muscles that are stretched and not strengthened will inevitably become tight again.

(Important stretches that can apply to any job in the sound department.

- **Doorway Stretch** - A stretch of the chest muscles
- **Trunk Rotation Stretch** - A stretch of the lower back muscles
- **Upper Trap Stretch** - A stretch of the neck muscles that go down to the shoulders
- **Scalene Stretch** - A stretch of the neck muscles that attach to the chest
- **Piriformis Stretch** - A stretch of a muscle that sits under the glutes and rotates the hip

More information on strengthening in the next section.) You may be wondering why stretching your muscles is important if it does not address the origin of the problem.
Muscles that are tight are inefficient as a muscle’s job is to contract. If the muscle is already in a shortened position, this will decrease the amount of possible room for contraction and the available force for contraction. A muscle is strongest and most efficient at the middle of its available range. Muscles that are too long also suffer from not being able to efficiently contract because they are at the other end of their efficiency bell curve. All that is to say that stretching tight muscles can be a really useful way of balancing the length of muscles, so that when you perform exercise or work skills, you are using your muscles in an efficient and even way.

Which muscles need stretching?

Pain or feelings of tension can be a good indicator of which muscles need stretching. Having an outside pair of trained eyes can also be incredibly helpful! Physical therapists, among other musculoskeletal trained professionals, can evaluate your movement patterns as you work and determine which muscles are weak and which muscles are tight. This outside perspective can give you more guidance on where your muscle imbalances may lie and more insight into how you should be stretching.

Example stretching schedule:

*~5 Min to Call Time*
Upper trapezius stretch (1.5 min)
Doorway stretch (1.5 min)
Scalene stretch (1.5 min)
*Lunch Break*
Piriformis stretch (1.5 min)
Hamstring stretch (1.5 min)
Quad stretch (1.5 min)
*End of Day*
Doorway stretch (1.5 min)
Side stretch (1.5 min)
Trunk Rotation stretch (1.5 min)

The main takeaway here is that stretching can be done quickly with little setup and equipment and can help set you up for injury prevention success.

How should stretching be performed?

General guidelines for static stretching is to hold a stretch for roughly 30 seconds. Performing a stretch 1-3 times with a short (<10s) rest break is an effective way to lengthen your muscles.

When is the best time to stretch?

Most people don’t have a clear understanding of when they should be stretching, and there is no “best” schedule. As motion picture industry professionals, you likely don’t have a well-defined schedule—but do have little break time. Ideally, stretching should be performed before performing exercise or physical activity and after/between performing repetitive tasks.

STRENGTHENING AND ERGONOMICS

Strength vs. Endurance

When we refer to strength, we want to make the distinction between strength and endurance. Strength is the ability of your muscles to generate force of contraction. Endurance is the ability of the muscles to maintain a contraction over time or repeatedly. Although many of your jobs do require you to be able to lift heavy objects, due to the nature of work that you perform in the industry, the muscle properties of endurance are more valuable to you for injury prevention purposes. Oftentimes, the jobs being performed in this profession require you to hold static positions for long periods of time, thus utilizing this property of endurance.

Injury Prevention

Generally speaking, injuries develop when deep stabilizer muscles have insufficient endurance and superficial movement muscles must compensate. This relationship leads to postural imbalances, muscle pain, and joint movement problems. Increasing your capacity to hold these positions by increasing the endurance of your stability musculature will help reduce the risk of injury.

What is the best way?

When training for strength vs. endurance, the difference really comes down to how much weight you are moving and how many times.

Strength: High Weight
Low Reps (3 sets of 6-8 reps)
Long Recovery Time
(>3 min)

Endurance: Low Weight
High Reps (3 sets of 10-15 reps)
Short Recovery Time (<2 min)

What is the best schedule?

For all intents and purposes, you should think of yourself as an athlete when performing jobs that require repeated skilled movements for long periods of time. When athletes train, they perform: leg/core day, push day, pull day.

Taking the time to exercise doesn’t have to take long and can be as simple as tying a resistance band to a sturdy handrail and performing some rows during a break.
A general exercise schedule for injury prevention can be as simple as this:

<table>
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<tr>
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<tbody>
<tr>
<td>Push Endurance</td>
<td>Rest</td>
<td>Pull Endurance</td>
<td>Rest</td>
<td>Legs/Core Endurance</td>
<td>Rest</td>
<td>Rest</td>
</tr>
<tr>
<td>High Reps = 3x15 Low Weight</td>
<td>Rest</td>
<td>High Reps = 3x15 Low Weight</td>
<td>Rest</td>
<td>High Reps = 3x15 Low Weight</td>
<td>Rest</td>
<td>Rest</td>
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</tbody>
</table>

Or as complex as this:

<table>
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<tr>
<th>M</th>
<th>Tu</th>
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</thead>
<tbody>
<tr>
<td>Push Strength</td>
<td>Pull Strength</td>
<td>Legs/Core Strength</td>
<td>Push Endurance</td>
<td>Pull Endurance</td>
<td>Legs/Core Endurance</td>
<td>Rest</td>
</tr>
<tr>
<td>Low Reps = 3x6 High Weight</td>
<td>Low Reps = 3x6 High Weight</td>
<td>Low Reps = 3x6 High Weight</td>
<td>High Reps = 3x15 Low Weight</td>
<td>High Reps = 3x15 Low Weight</td>
<td>High Reps = 3x15 Low Weight</td>
<td>Rest</td>
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</table>

**POSTURE AND ERGONOMICS**

Whether you are a boom operator who needs to keep your arms over your head or a sound mixer leaning over a mixing panel, how you position yourself will have an impact on your body mechanics and vulnerability to injury. Contrary to popular belief, there is not one posture that is bad for you. The truth is holding any posture for too long can cause muscle length problems and joint stress. A helpful phrase to remember is: “Your next posture is your best posture!”

**APPLICATION BY PROFESSION**

Let’s break down each position and discuss risk factors for possible injury and how they can be prevented.

**Sound Mixers**

A popular belief from a few years ago was that sitting is the “new smoking.” While this has been disproven, sitting for many hours a day with poor posture and lack of movement can be detrimental to your health. Common injuries that can develop from the slouched forward posture and weak core muscles that run rampant in this community include thoracic outlet syndrome, postural syndrome, and low back pain.

In this photo of Steve Tibbo CAS, he can be seen with rounded shoulders and forward head, which causes increased tension in the muscle on the front of the chest and back of the neck. This posture indicates weakness of the upper back muscles and deep neck flexor muscles. This posture can lead to rotator cuff pain, numbness and tingling in the arms, pain through the neck, and headaches.

Keeping your shoulders relaxed with your elbows at the level of your controls will help to keep you from shrugging your shoulders and developing these kinds of postural problems. By keeping your back in an upright position, you prevent strain on your low back muscles.

**How to remember to change posture?**

When we are working intensely, the last thing on our mind is often our posture—and this is where awareness comes in. One solution is to use a mental totem as a reminder to adjust into an upright position if you tend to slouch. Production sound mixers can use cuts as cues to sit upright and turnarounds as prompts to get up and walk around or stretch.

As we know, re-recording mixers don’t have cuts or turnarounds for prompts. Steve Tibbo pointed out that when in post, he often feels “…glued to his chair.” Karol Urban uses reminders she sets on her Apple watch to get up and move. There are also hundreds of free activity/reminder apps such as “Stand Up!” and “HabitNow” that can remind you to take a walk or even just shift positions.

**Boom Operators/Bag Mixers**

Due to the overhead arm positions with internal and external rotation demands at the shoulders, boom operators and bag mixers have several common injuries. These include Shoulder Impingement Syndrome, rotator cuff tears, shoulder bursitis, and postural syndrome/neck pain. Lower back pain is also common due to the increased arch in the small of the back that results as a compensation for weak core musculature.

While making micro adjustments with their shoulders and arms becomes second nature, the same forward head position seen in mixers occurs here as well. If a boom operator has the awareness to consciously correct posture, even in the middle of a take, some of the shoulder and neck stress will transfer to those deep stabilizer muscles, reducing fatigue and risk of injury to the superficial muscles and joints.

As Bryan noted earlier, exoskeletons can considerably help offload the shoulder joint during these overhead positions, but strengthening the rotator cuff muscles,
scapular muscles, and core muscles is still necessary to reduce the likelihood of developing pain patterns and injuries associated with prolonged overhead arm positioning.

Utility Sound Technician
As the jack of all trades, the utility sound tech is vulnerable to overuse injuries associated with bending, lifting, twisting, and squatting on top of the injuries already mentioned. Focusing on core and glute strength can go a long way to help prevent injuries such as low back pain and knee pain.

Injury Prevention Programs
I have provided example programs (see the article’s second page) for some general injury prevention exercises that can be performed easily during breaks with limited equipment. Taking the time to perform these exercises every day can help prevent a wide range of overuse injuries.

While these examples were developed for issues associated with the tasks of each crew member, all of us can benefit from performing any of the stretches and exercises.

OTHER CONSIDERATIONS
Manual Therapy/Massage
In the post-COVID environment, manual therapy interventions (deep tissue massage, stretching, myofascial release, joint manipulations, etc.) can be incredibly useful for preventing injury. These techniques, delivered by a doctor of physical therapy, are more specific than can be provided by a massage therapist. Physical therapists have the unique ability to diagnose movement pattern dysfunctions and treat injuries before they develop to the point of needing time away from work.

Many of you already take time out of your busy days to go see chiropractors and physical therapists. It is my belief that by changing the on-set culture to include physical therapists in the standard roster of medical professionals that can be found on set (medics, massage therapists, etc.), the industry will be able to save time and, ultimately, money by protecting their cast and crew from costly injuries. And with that, I’ll hand it back over to Bryan.

Making a Habit of It
One of the most difficult aspects of these routines is sticking to them. One study I read concluded that it takes 66 days to develop a new habit. With changing schedules, jobs, and locations, maintaining a stretching/exercise program is challenging. This is where awareness can really help. Awareness of your body’s needs and the health benefits provided from maintaining a program until it becomes habitual.

What about those times that you absolutely can’t stick to your routine? I talked with Karol Urban about client approval days where she is booked tightly all day. On those days, Karol will also try to get in her routine before work. Under those circumstances, it is especially important to be aware of your posture and remember that shifting your position doesn’t cost any time but might save you some pain.

A re-recording mixer is also frequently working in a space designed by someone else and has limited ability to conform the ergonomics to their physique. With this in mind, it is important to understand that ergonomics don’t begin and end at work—paying special attention to the ergonomics of your living space is also important. For instance, if you sit all day at work, you might want to have a standing desk at home.

CONCLUSION
Through ergonomics, we have the potential to not only greatly improve our working conditions, but to improve quality of life. Pain reduction, injury reduction, and increased efficiency are all benefits that can be gained through application of the devices and techniques discussed in this article. But like so many things, the greatest benefits don’t come without active participation and diligence. I wouldn’t go as far as to use the cliché, “No pain, no gain,” but your active engagement is required to get the most out of this discipline.
We cross paths with many people over the course of a career. Some are quick acquaintances, some become regular colleagues, while still others we are fortunate to call friends.

The CAS wishes to recognize those who have worked in the industry and have recently passed on, leaving a great legacy behind them to our membership.

Alfred T. Ferrante CAS
Former CAS Board Member and Foley & ADR Mixer

Former CAS Board of Directors member and retired Foley/ADR mixer Alfred T. Ferrante CAS, passed away on New Year’s Eve, 2020, at Hospice Care in Cape Coral, Florida, after a prolonged battle with cancer. He is survived by his brother Christopher.

Al graduated from St. John’s University and held two master of arts degrees from New York University. Best known for his TV work (Star Trek, MacGyver, Baywatch), Al was a multiple MPSE Golden Reel Award winner, contributed to many Emmy-nominated programs, and was the only member of the production staff to have worked on every episode of Star Trek from first to last. In the mid-’80s, Al offered his time to serve on the Board of Directors of the CAS. After retirement from the motion picture industry, he returned to his dormant music career, performing and recording in Southwest Florida under the stage name of “Father Al & The Jazz Congregation.” Al was a jazz drummer, trained in his teens at the Gene Krupa/Cozy Cole music studios in New York City. At his request, his remains have been privately returned to a permanent resting place in Hollywood. The CAS wishes to extend our condolences to Al’s family and friends.

Our condolences extend as well to our friends and colleagues in the sound community who are integral to the continued growth and success of our craft and passion.

Alan Robert Murray
Supervising Sound Editor

Rupert Neve
Audio Industry Icon

Michael Wolf Snyder
Production Sound Mixer

For detailed biographies, please visit the CAS website at CinemaAudioSociety.org
Brendan Beebe CAS is hoping you all have been enjoying the wonderful new year. In 2020, it felt great to be back at work supervising America’s Got Talent Season 15 at Universal Studios. Although working on an almost empty lot could, at times, feel eerie, being on such a carefully managed, safely monitored set coming out of quarantine was reassuring and a relief. Adding to the excitement of being back on set, AGT 2020 welcomed its first spoken-word poet winner, Brandon Leeke! Next up, my crew and I returned to 9-1-1 Season 4 for Fox/Disney. Rebecca Chan and Evan Freeman are at the top of their game on this challenging show where locations change quickly and fires must be put out constantly. My team expertly navigates the new protocols while seamlessly capturing sound on set as we roll into 2021. Safety and success to all!

David Bondelevitch CAS MPSE recently completed mixing the documentary Burning Sky, about the tests of the H-bomb on the Bikini Atoll. Much of the footage was only recently released under the FOI Act. The documentary has distribution in Europe and is currently seeking distribution in the States.

Philip Perkins CAS mixed the dance documentary People of the Forest (as well as its “making of” film), and continues work on the (big) PBS doc feature I Wanted to Be a Man with a Gun, based on interviews with WW II combat vets shortly before they passed away and also uses a huge pile of archival audio and footage.

Gratefully, Kenn Fuller CAS and his stellar crew of Kevin Culligan on boom, Daniel Martinez (the Swiss Army knife of utilities), and Y-16a sound trainee Julianna Cruz have managed to navigate the challenges of COVID production protocols since mid-September on the HBO Max series Generation. While surreal at times, having the opportunity to practice our craft in this unique environment has given us a real sense of accomplishment.

Matt Foglia CAS is enjoying the spring semester teaching at MTSU while also mixing S2 of The Osbournes Want to Believe and S4 of Paranormal Caught on Camera for Travel.

Steve Weiss CAS is mixing All Rise with as many as 16 cameras in the courtroom scenes and others. There are no camera operators or boom ops allowed on set. That’s production life in the pandemic! Stacey Washer and Dennis Carlin are sharing the wires, sanitation, jamming, and a myriad of other chores.

Karol Urban CAS MPSE and Kurt Kassulke CAS are mixing David E. Kelley’s Big Sky and Made for Love for HBO Max. We are also excited to begin the second half of Season 17 of Grey’s Anatomy.

Philip Silver CAS (retired) recently moved into the Motion Picture & Television Country House and Hospital campus in Woodland Hills, CA. He was on the waiting list for a number of years, and is happy to be able to spend his senior years in the company of fellow filmmakers.

Fred Ginsburg CAS is teaching his final semester of production sound at California State University Northridge, and continues to contribute articles to Student Filmmakers Magazine. Fred will be hanging up his headphones for good and retiring early summer to his other home in Las Vegas, where he and his wife plan to enjoy Jeep-ing, competition BBQ, and shooting sports. See you all at NAB!

Frank Morrone CAS and Robert Carr CAS have wrapped on Killing Time and are currently mixing Roswell, New Mexico; Magnum P.I.; and Legacies on Technicolor’s Stage Four.

Jeffery J. Haboush CAS and Joel D. Catalan CAS are grateful to be back on Stage 5 at Smart Post Sound. Currently, the team is mixing S6 of DC’s Legends of Tomorrow, S4 of Black Lightning, and beginning work on S2 of DC’s Stargirl. During these unprecedented times, the team wishes health and safety to all their colleagues.

Daniel Vasquez Velez CAS recently finished the mix of the Colombian film The City of Wild Beasts, the Costa Rican documentary Strange Objects, and the Panamanian/Colombian film Something Blue at Clap Studios in Medellin, Colombia.

Gavin Fernandes CAS has been mixing away on Blood & Treasure for CBS. Lots of blood, but haven’t found the treasure…

Production sound mixer Michael Wynne CAS and boom op Jorge Del Valle had a successful deployment of their
process trailer rig on Netflix’s series *Raising Dion* (see photo in “The Lighter Side” section). We love the use of our insta-snake rig because its ability to hard-line up to four channels with phantom down one Cat 5e cable allows us to easily deploy our super-cardioid mics for the best possible sound quality and zero RF challenges.

CAS Associate member **Kevin Strahm** recently wrapped on *Delilah* for OWN and started mixing *The Black Phone* for Blumhouse and Universal at the very busy EUE/Screen Gems Studios in Wilmington, NC.

Checking in from NBCUniversal StudioPost Sound Operations…

**Peter Nusbaum** CAS and **Whitney Purple** CAS are now enjoying that new stage smell as they mix in the new Mix-12—located right smack dab in the middle of Universal’s Picture Department. Shows being mixed include *Black-ish, Grown-ish, Mixed-ish, Last Man Standing, Punky Brewster, Call Your Mother, Good Girls, and Never Have I Ever.*

**John Cook’s** CAS longtime mixing partner **Bill Freesh** CAS has retired! Good for Bill. Ben Wilkins has teamed up with John in BluWave Mix-A for the following shows: *Rutherford Falls, Law & Order: Organized Crime, Hacks—The New Jean Smart Comedy, Little America, Space Force, Acts of Crime, Angelina, Upload,* and *The Office* extended episodes for the Peacock streaming network.

Across the lobby in BluWave Mix-B, **Robert “Bobby” Edmondson** CAS and Ruben Ripley are keeping busy with Dick Wolf’s *FBI* and *FBI: Most Wanted.*

In BluWave Mix-C, **Todd Morrissey** CAS and Eddie Bydalek are enjoying the Windy City with Dick Wolf’s *Chicago Fire* and *Chicago P.D.*

Continuing with the tradition of Dick Wolf’s Chicago shows, **Gregg Watkins** CAS and **Derek Marcil** CAS are mixing *Chicago Med* and wait for it… Season 22 of *Law & Order: Special Victims Unit.* Wow, 22 seasons!

Across the street in Mix-1, **Mark Fleming** CAS and **Myron Nettinga** CAS are staying busy putting the finishing touches on Amazon’s *Panic,* continuing with *Generation,* and beginning work on *Swagger*—then looking forward to starting work on *Raised by Wolves* Season 2.

Next door in Mix-2, **Keith Rogers** CAS and **Andy King** CAS hope to be *Home Before Dark,* with *Solos, This Country, The Langdon Pilot, Cowboy Bebop,* and looking forward to starting *Pieces of Her.*

In Mix-5, Michael Jesmer and Brian Dinkins are staying busy with *Superstore* and the new *Kenan Show.*

A special thanks to all the staff who tirelessly support all of the work being done, especially in the middle of a pandemic!
**THE LIGHTER SIDE**

(L to R) Daniel Martinez, Julianna Cruz, Kevin Culligan, and Kenn Fuller CAS sporting the latest in PPE, including double masking and shields.

Brendan Beebe CAS in his dual roles as sound supervisor on *America’s Got Talent* and production mixer on *9-1-1*.

Fernando Muga CAS is back at work on a new show for Apple—and still delighted that the L.A. Dodgers are World Champs.

Production sound mixer Michael Wynne CAS and boom op Jorge Del Valle celebrate a successful deployment of their process trailer rig on Netflix’s series *Raising Dion*.

Karol Urban CAS MPSE and Kurt Kassulke CAS celebrate the retirement of the legendary T.W. Davis, our beloved sound supervisor of more than 350 episodes of *Grey’s Anatomy*. Much love, Tom!!!
“Always a good day when one of your best friends is day playing on your show.” Kurtis Ewing CAS with Michael Beach

Daniel Vasquez Velez CAS wrapping up the mix of *Something Blue* with director Mariel Garcia, producer Maria Burns, and sound co-supervisor Sebastian Alzate on the mixing stage at Clap Studios in Medellin, Colombia.

“Always a good day when one of your best friends is day playing on your show.” Kurtis Ewing CAS with Michael Beach

Masked and unmasked on the set of the Marvel/Disney + series *Hawkeye* in Atlanta. Alana Knutson (utility sound/2nd boom), Jason Lewis (boom operator), and mixer Pud Cusack CAS. Photo: Chuck Zlotnick

Louis Block recording CAS Associate Dan Dugan in his lab for Eli Adler’s shoot of Dan’s Emmy acceptance speech.
iZotope would like to thank all members of the CAS for their continued support, and commends the incredible work done by all.