FOR YOUR CONSIDERATION

AMERICAN SNIPER

BEST SOUND EDITING
ALAN ROBERT MURRAY
BUB ASMAN

BEST SOUND MIXING
SOUND MIXER
WALT MARTIN
RE-RECORDING MIXERS
JOHN REITZ
GREGG RUDLOFF
FEATURES

CAS Career Achievement Award ........................................ 15
David Macmillan, CAS to be honored

3rd Annual CAS Picnic ...................................................... 16
Fun for the whole family

Words of Wisdom .......................................................... 31
Advice from Career Achievement Award recipients

Mixing Over Five Decades ............................................... 32
50 years of production and post-production innovations

Evolution of the Sound Cart ............................................. 40
Sound cart enthusiasts talk for hours

CAS Quarterly: Then and Now ......................................... 48
Advancing the field with an exchange of information

Wild .................................................................................. 50
Mixing a feature entirely over the shoulder

Immersive Sound Event .................................................... 54
From production to playback

DEPARTMENTS

President’s Letter ............................................................... 4
Expanding the reach of the CAS

From the Editors .............................................................. 6
Honoring achievements on our 50th anniversary

Announcements ............................................................... 11
In Memoriam, MemberClicks and awards schedule

Meet the Mixer ................................................................. 19
An interview with re-recording mixer Jonathan Wales, CAS

Technically Speaking ....................................................... 25
That was then, this is now

Been There Done That .................................................... 58
CAS members check in

The Lighter Side ............................................................. 62

Cover: 50 Years of CAS
I’d like to welcome everyone to our fall edition, and here we are again—starting up our exciting awards season! Inside these pages, you will find articles of interest to the sound community written by our members, as well as contributions from our corporate sponsors, which we hope you will find interesting as you work and learn in the craft of sound mixing.

Your CAS Board has set in motion several ideas and concepts which will expand the reach of the CAS, as well as further our mission to advance the art and craft of sound mixing. Currently on the CAS website, we are posting all the latest CAS Awards news, applications, and online voting information for this year’s awards. Please also note that we have revised three of our categories to now include SCORING MIXERS and ADR MIXERS as nominees. I am very excited to see these and many other changes happening as the CAS grows. Also on the website, you will find our Awards Timeline which dictates our awards season, leading up to the Awards Dinner, held at the Millennium Biltmore Hotel in Los Angeles on February 14, 2015.

Another positive note—we have announced the inaugural CAS Student Recognition Award. The award comes with a $2,500 grant and is intended to encourage students’ interest in production or post-production sound mixing, and to recognize individual students with exceptional demonstrated passion for the field. One of our founding principles is to foster the next generation of sound mixers and the realization of this award has been a longtime personal goal of mine as a member and an officer of the CAS. The selection criteria will focus on the student’s short essays in response to application questions, along with a professor’s recommendation letter. The finalists will be invited to attend the 2015 Awards Dinner, where the Student Recognition Award recipient will be announced. Very exciting!

Again this summer, we had a successful CAS picnic, and are planning more seminars for our members to enjoy in the coming months. Of course, the very well-attended Immersive Sound Conference was a huge success, and we look forward to more in the future. Another goal of ours is to reach out to our national and international sound community, and hopefully bring seminars to the East Coast, and possibly overseas. We are constantly looking for ways to include our ‘out of town’ members, and use the available technology to close the gap of distance, and involve more of our membership in our events. I see no reason to delay!

In closing, I’d like to say “THANK YOU” to your CAS Board of Directors, for all its hard work. Nothing can happen without the full participation of many people, and we have a great group working together to move us forward. If you would like to get more involved, just let us know, and you will be welcomed. We have elections coming up very soon so feel free to jump in!

Happy 50th, CAS!

David E. Fluhr, CAS
President of the Cinema Audio Society
FOR YOUR CONSIDERATION

TRANSFORMERS
AGE OF EXTINCTION

BEST SOUND MIXING
SOUND RE-RECORDING MIXERS
GREG P. RUSSELL
SCOTT MILLAN
JEFFREY J. HABOUCH
SOUND MIXER
PETER J. DEVLIN, CAS

BEST SOUND EDITING
SUPERVISING SOUND EDITORS / DESIGNERS
ETHAN VAN DER RYN
ERIK AADAHL

“A SPECTACULAR VISUAL AND AURAL EXPERIENCE.”
GLENN KENNY, ROGER EBERT

PARAMOUNTGUILDS.COM
50 years ago, the Beatles played their first concerts in the US and last month, Matt caught Paul McCartney in concert in Nashville. While the technology has changed, the focus is the same—the songs—the craft. The same can be said of our craft—sound. For 50 years, the CAS has been at the forefront of advancing and improving one of our craft’s main goals: to best capture and translate the vision of directors, producers, and performers.

In honor of our 50th anniversary, you will find a number of articles recalling some of the innovations and achievements that have taken place during this time. Devendra Cleary, CAS recounts “The Evolution of the Sound Cart,” G. John Garrett, CAS traces some of the award-winning technological advances in his “Technically Speaking” column and the article “Mixing Over Five Decades,” compiled by Tomlinson Holman, CAS and Matt Foglia, CAS, provides a walk-through of some milestone advancements in approaches and innovations relative to mixing. Additionally, former Quarterly editor Peter Damski, CAS reflects on the origin and evolution of this magazine.

Staying with the historical vibe, Dick Hansen, CAS contributes an article recapping his interesting “old school-esque” over-the-shoulder mixing on the film Wild. On the modern side, April Tucker, CAS recaps the “CAS Immersive Sound” event that took place in September while Shaun Cunningham, CAS interviews Jonathan Wales, CAS about his recent Dolby Atmos installation in the “Meet the Mixer” column.

In case you missed the press release, the CAS is extremely pleased to announce this year’s Career Achievement Award recipient, production mixer David Macmillan, CAS. Read about David’s impressive career in these pages. Additionally, be certain to read the anecdotes and words of wisdom from some of our past Career Achievement Award recipients and past Presidents. Finally, this wouldn’t be a Quarterly without “The Lighter Side” and “Been There Done That” sections—letting us know how our members have been keeping busy.

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

Matt Foglia, CAS
Karol Urban, CAS
BEST PICTURE

BEST SOUND EDITING
GLENN FREEMANTLE, Sound Designer/Supervising Sound Editor
BEN BARKER, Sound Design Editor

BEST SOUND MIXING
IAN TAPP, CAS, Re-Recording Mixer
ADAM SCRIVENER, Re-Recording Mixer

FOR YOUR CONSIDERATION IN ALL CATEGORIES INCLUDING

“BEST PICTURE”

“BEST SOUND EDITING”

“BEST SOUND MIXING”

GLENN FREEMANTLE, Sound Designer/Supervising Sound Editor
BEN BARKER, Sound Design Editor
IAN TAPP, CAS, Re-Recording Mixer
ADAM SCRIVENER, Re-Recording Mixer

FOR MORE ON THIS EXTRAORDINARY FILM, GO TO WWW.FOCUSGUILDS2014.COM
“THE FILM, IN VIVID 3-D,
WAS WRITTEN AND DIRECTED BY DEAN DEBLOIS... A SOLO
FILMMAKER IN CHARGE OF SUCH A HUGE ENTERPRISE, AND IT'S
A GOOD CLUE TO PRODUCTION'S DRAMATIC COHERENCE. MANY
THEMES ARE EXPLORED, SOME OF THEM ESSENTIAL TO HICCUP'S
UNDERSTANDING OF THE ADULT WORLD, BUT ALWAYS THROUGH
HIS CHARMINGLY MERCURIAL SENSIBILITY; ACTION, RATHER
THAN PreACHMENT, IS THE NARRATIVE'S TEACHING TOOL.”

JOE MORGENSTERN
THE WALL STREET JOURNAL

FOR YOUR CONSIDERATION IN ALL CATEGORIES
BEST ANIMATED FEATURE
and BEST PICTURE OF THE YEAR

PRODUCED BY | BONNIE ARNOLD, p.g.a.
BEST DIRECTOR | DEAN DEBLOIS
BEST ADAPTED SCREENPLAY | DEAN DEBLOIS
Based upon the “HOW TO TRAIN YOUR DRAGON”
book series by CRESSIDA COWELL

BEST SOUND MIXING
Supervising Sound Designer | RANDY THOM
Re-Recording Mixers | RANDY THOM | SHAWN MURPHY | BRANDON PROCTOR

BEST SOUND EDITING
Supervising Sound Editors | RANDY THOM | MICHAEL SILVERS
“RICH AND COMPLEX. IT’S THE MESMERIZING MOMENT-BY-MOMENT SENSORY POWER OF THIS FUNNY YET PIERCINGLY SAD MOVIE THAT RESONATES ON THE DEEPEST LEVEL—SOAKING UP LIGHT, ATMOSPHERE, AND BEHAVIORAL BEAUTY.”

Kent Jones, filmcomment

FOR YOUR CONSIDERATION
INHERENT VICE

Christopher Scarabosio
Matthew Wood

Best Sound Mixing
John Pritchett, CAS
Christopher Scarabosio
David Acord

Re-Recording Mixers

WWW.WARNERBROS2014.COM
Have you discovered YOU on MemberClicks?

This great new resource will offer a current online directory to our members, as well as provide privacy settings. Plus, it helps to keep our organization green! Also, it opens a world of possibilities for additional valuable member services such as online dues pay, forums, and exclusive members-only content (coming soon). If you haven’t already, please go to CinemaAudioSociety.org and log in at the top right corner with the MemberClicks information you have received from your email.

Walt Martin, CAS passes on

Sound mixer Walt Martin, CAS passed away at age 69 on July 24, 2014. He completed more than 70 films in his incredibly impressive 41-year career. Walt received his Oscar nod for Flags of Our Fathers in 2006 and worked with Clint Eastwood on 14 films in total. Most recently, he completed Jersey Boys (2014) and American Sniper (2015). Gail Carroll-Coe, a boom operator who did seven Eastwood films with the sound mixer, described Walt to The Hollywood Reporter as part of Eastwood’s “took everywhere” crew. He will be dearly missed in the community.

In memory of our friends

As we put more years into our craft, we interact with many inspirational individuals on set and on the stage who impact our careers and lives. If you would like to notify fellow members of the passing of a collaborator they may have worked with, you can submit information and, if possible, a photo to CASQuarterly@CinemaaudioSociety.org.

Guess who shares our birthday?

In 1964, Dr. Robert Moog introduced the Moog synthesizer. It was an innovative new electronic instrument that would go on to influence music history and sound design.

The wooden-framed Moog modular synthesizer encased individual electronic modules using voltage-control to create sounds never before heard.

Happy 50th to Moog synthesizers!
Transform noisy, distorted, or flawed audio into pristine material. With intelligent new modules, time-saving new features, and deeper levels of integration with your editing software, RX 4 is the next generation of an industry standard.

Learn more about RX 4 at www.izotope.com/rx

51st Annual CAS Awards schedule has been announced

The timeline is as follows:
- Entry Submission Form available online on the CAS website beginning Mon., Oct. 13, 2014
- Entry Submissions due by 5 p.m. Fri., Nov. 14, 2014
- Nomination Ballot Voting begins online Wed., Dec. 10, 2014
- Nomination Ballot Voting ends online 5 p.m. Mon., Jan. 5, 2015
- Final Five Nominees announced Tue., Jan. 13, 2015
- Final Voting begins online Wed., Jan. 21, 2015
- Final Voting ends online 5 p.m. Fri., Feb. 6, 2015

Honorary Awards will be announced later in the year. 51st Annual CAS Awards are scheduled for Saturday, February 14, 2015, in the Crystal Ballroom of the Millennium Biltmore Hotel, Los Angeles, California

Do you own or work for a company whose facilities would enjoy copies of the CAS Quarterly?

If so, submit the company name, contact name, requested number of copies, and mailing address to CASQuarterly@CinemAaudioSociety.org to apply for additional mailed copies of our publication.
FOR YOUR CONSIDERATION IN ALL CATEGORIES INCLUDING

BEST SOUND MIXING
MIKE PRESTWOOD SMITH
MICHAEL KELLER
JOHN CASALI

BEST SOUND EDITING
RENÉE TONDELLI
BLAKE LEYH

Disney
INTO THE WOODS

FOR OUR SCREENING SCHEDULE VISIT US AT
WALTDISNEYSTUDIOSAWARDS.COM

©2014 DISNEY
THE LEGO MOVIE is such outrageous and intoxicating fun. It's fast and original, conceptually audacious and visually astonishing. Here, at last, is an animated comedy that never stops surprising you.”

–OWEN GLEIBERMAN, Entertainment Weekly

BEST ANIMATED FEATURE
DIRECTED BY
PHIL LORD & CHRISTOPHER MILLER
PRODUCED BY
DAN LIN, ROY LEE

BEST SOUND EDITING
WAYNE PASHLEY M.P.S.E.

BEST SOUND MIXING
RE-RECORDING MIXERS
MICHAEL SEMANICK
GREGG RUDLOFF
WAYNE PASHLEY M.P.S.E.
CAS President David E. Fluhr announced that the organization will honor production mixer David Macmillan, CAS, with the Society’s highest accolade, the CAS Career Achievement Award. It will be presented at the 51st CAS Awards on February 14, 2015, in the Crystal Ballroom of the historic Millennium-Biltmore Hotel in Los Angeles.

“I am pleased to announce that the CAS Board of Directors have chosen David Macmillan as this year’s Cinema Audio Society Career Achievement honoree. David represents the high standards we all aspire to, as a sound mixer, a mentor, and an educator,” said Fluhr. “David received the first of his Oscars 30 years ago—as a mixer he obviously, has the right stuff!”

Born in Northern Ireland, David Macmillan began his career in sound over 50 years ago in Canada, where he served an apprenticeship with the Canadian Broadcasting Corporation (CBC), a three-year program he completed in just a little more than one year. By the age of 24, he was recording series television, news, and documentaries. In the summer of 1968, Macmillan traveled to California to record three documentaries; one in Southern California and the other two in the Bay area. It was then that he left the CBC and was fortunate to meet filmmaker Francis Ford Coppola, whose film studios, American Zoetrope, was being built in San Francisco. Coppola hired him to wire and run the company’s mixing facility.

After three years at American Zoetrope as the in-house dubbing mixer, Macmillan chose to go back into production sound. With experience in both post and production sound, he quickly became one of the top production mixers in the entertainment industry.

In 1984, his work on *The Right Stuff* earned him the first of three Academy Awards and later that year, he moved to Los Angeles to accommodate all the work that was coming his way.

To date, Macmillan has more than 80 feature films to his credit. His three Oscar® wins came for *The Right Stuff*, *Speed*, and *Apollo 13*, which also won the CAS Award for Outstanding Sound Mixing for a Motion Picture. His television work has been recognized with both a CAS and Emmy nomination for HBO’s *Game Change*. He has collaborated with Oliver Stone, Ron Howard, Alan Parker, Lawrence Kasdan, Sydney Pollack, Philip Kaufman, Tony Scott, Joel Shumacker, Nora Ephron, Mike Nichols, Katherine Bigelow, Jan de Bont, Jay Roca, and Judd Apatow, to name a few.

For the past five years, Macmillan has been teaching at UCLA, USC, Chapman University, and Loyola Marymount University. In addition, he has given master classes at the Targowa Film Festival in Lodz, Poland, the Transatlantyk Film and Music Festival in Poznan, Poland, FEST in Portugal, and two-day mixing workshops in London and Norway.

Macmillan is a member of the Cinema Audio Society, the Academy of Motion Pictures Arts and Sciences, and the Academy of Television Arts & Sciences.

As the 33rd recipient of the Cinema Audio Society’s highest honor, Macmillan joins an illustrious group of past honorees that includes Don Rogers, Walter Murch, Les Fresholtz, Tomlinson Holman, Richard Portman, Jim Webb, Charles Wilborn, Gary Rydstrom, Willie Burton, Mike Minkler, Ed Greene, Dennis Sands, Randy Thom, Jeffrey S. Wexler, Scott Millan, Chris Newman, and Andy Nelson. •
On Sunday, August 10, 2014, the CAS held its 3rd Annual CAS Picnic at Elysian Park in Los Angeles. The event was attended by more than 100 members, their families, and friends. Food was provided by Big Time Catering—featuring burgers, dogs, and traditional BBQ fare. A bounce house, games, and squirt guns were provided for the kids. Bob Bronow headed up the event, along with Fred Tator and Dorothea Sargent. Bob was also the afternoon’s master of ceremonies for activities including a sack race, an egg toss, and a water balloon toss—that quickly erupted into a full laughter-filled water balloon fight. A raffle took place with prizes including iTunes gift cards, CAS-embossed items, Metallica gear, and two LA Angels baseball tickets donated by Ed Moskowitz.

The day ended with a strawberry- and cream-filled cake under a perfect blue sky. Keep your eyes and ears open for announcements for the 4th Annual CAS Picnic taking place next year. We look forward to seeing you there.
FOR YOUR CONSIDERATION IN ALL CATEGORIES INCLUDING

BEST SOUND MIXING
KEN ISHII, C.A.S.
SKIP LIEVSAY
CRAIG HENIGHAN

BEST SOUND EDITING
CRAIG HENIGHAN

BEST PICTURE OF THE YEAR
SCOTT FRANKLIN
DARREN ARONOFSKY
MARY PARENT
ARNON MILCHAN

BEST DIRECTOR
DARREN ARONOFSKY

BEST ORIGINAL SCREENPLAY
DARREN ARONOFSKY & ARI HANDEL

BEST ACTOR
RUSSELL CROWE

BEST SUPPORTING ACTRESS
JENNIFER CONNELLY
EMMA WATSON

BEST SUPPORTING ACTOR
ANTHONY HOPKINS
RAY WINSTONE

BEST CINEMATOGRAPHY
MATTHEW LIBATIQUE, ASC

BEST PRODUCTION DESIGN
MARK FRIEDBERG
DEBRA SCHUTT

BEST FILM EDITING
ANDREW WEISBLUM, ACE

BEST COSTUME DESIGN
MICHAEL WILKINSON

BEST ORIGINAL SCORE
CLINT MANSELL

BEST ORIGINAL SONG
“MERCY IS”
WRITTEN BY PATTI SMITH & LENNY KAYE
PERFORMED BY PATTI SMITH & KRONOS QUARTET
Patti Smith performs courtesy of Columbia Records. Kronos Quartet performs courtesy of Nonesuch Records.

BEST MAKEUP AND HAIRSTYLING
ADRIEN MOROT
JUDY CHIN
JERRY POPOLIS

BEST VISUAL EFFECTS
BEN SNOW
DAN SCHRECKER
MARC CHU
BURT DALTON

NOAH
If you know Sonic Magic Studios, then you probably know their CEO and co-founder, Jonathan Wales, CAS. If so, it won’t come as a surprise to you that they have just completed a Dolby install. Jonathan is known not only as a re-recording mixer, but also as a huge advocate of staying on the cutting edge of technology (His company was also one of the first to integrate a centralized fibre channel file server). I had the opportunity to sit down and speak, with Jonathan on Sonic Magic’s newly updated Dolby Atmos mix stage.

What was the driving factor that led you to install an Atmos system?
I think immersive audio represents a new market opportunity and a new technological exploration that’s right on the cutting edge of creativity. It enables you to do things you simply can’t do in other formats. I think it’s incumbent on us as facilities and practitioners of sound to evangelize these things to producers and directors so we can lead them and show them what’s possible.

Atmos gives you a lot more space to work with in the soundstage; it’s a difference in the ways that you’d imagine but also in a myriad of more subtle ways that you wouldn’t expect. There’s no sonic difference any longer between screen channels and surround channels. Thus, you place full-range objects with precision in the surrounds. Just the fact that you could move music slightly back in the room—maybe 10% off the screen—yields a wonderfully unexpected subtlety. In turn, the amount of separation you can get for dialogue vs. effects and music in complex sequences lets you get a lot more clarity in the mix. As a mixer, I think this makes it a much more desirable format for clients to work with because you can more easily achieve something creative that a filmmaker wants to do.

Are your clients noticing those subtle differences and the capabilities with having full-range surrounds?
I think clients who are mixing in Atmos are aware that it’s something significantly more than traditional surround sound, but I think the subtler results are as much felt as heard. Also, there is the question of ease. If you can achieve a compelling result efficiently and the client loves it, then obviously that plays into the overall client experience of the process—and that’s what sells and makes them come back.

Did you see a market for offering Atmos to your clientele?
Well, as a facility, you want to have the capability to handle, not just what the clients want now, but also what they are going to want in the future. I’d much rather be in front, and I think that as professional facilities we want to offer the best of what’s possible to our clients, whether they know they need it yet or not. The same thing happened 20 years ago when we were dealing with the transition between Dolby LtRt Surround and then coming into Dolby Digital. Although it was a less invasive change to the physical infrastructure at the time, it was still definitely a situation where, as a facility, you wanted to be in front of the curve.

There is also an Atmos home format coming toward the end of this year. I think there is going to be a lot of repurposing work, not just origination, where people will come back and say we really need to do an Atmos mix.

How was the installation process and how involved was Dolby throughout?
We consulted with Dolby extensively beforehand. There’s a lot of physical measuring that has to go on and design of where the speakers are going to be. Technologically, we were very up to date to begin with, the only real challenge for us was installing speakers and amps and adding to the crossovers. The installation of the Dolby RMU mastering box was comparatively easy. It was the speakers and amps that were the hardest part of the installation because it was a physical downtime on the room. We managed the physical side of the install in 10 days.

Dolby pays a serious amount of attention and takes great care at every level: from deciding they are happy to do an Atmos install in the room, that the room meets...
Traditionally, if you are not feeding a similar number of surround speakers in a similarly sized space, then it is hard for the surrounds to sound the same. In Atmos, not only do we have much more freedom in the mix for surrounds, but we also have a much better understanding of what something is going to sound like in any other Atmos environment.

Have you had the chance to mix something on the stage here in Atmos and take it to somewhere like the ArcLight and hear it back?
Yeah, and it’s pretty amazing. We’ve all grown accustomed to the incompatibilities that exist in the way surround fields “feel” or subs “feel.” Over the years, it’s gotten better and better because the tuning and processing tools have gotten better, so we’ve been able to dial-in rooms a lot closer—especially over the last five or six years compared to what we were doing a decade ago. But the translation of the Atmos mixes is incredible. I just wouldn’t have believed that it was that capable of accurately replicating what we did.

Does that take away the fear of making mix moves and limiting creative decisions because of worrying about translation to other rooms and smaller formats?
I know what you mean, but I try to never think that way. You’ve got to mix in the context of what you’re hearing and what you’re seeing and make the best mix that you can. In order to do that, you’ve got to get your room to a point that you truly trust it and that you really know that what you’re doing is going to be accurately reflected.

What are the deliverables like from an Atmos mix output?
Are you delivering audio files like a traditional 5.1 mix or information for the RMU?
It’s about half and half, really. I mean, it’s X,Y,Z position coordinates plus audio, on top of a traditional field-based system. Literally, an Atmos mix is a conventional 7.1 or 9.1 mix with the capability to put separated audio objects superimposed anywhere you like in the room.

There are really two deliverables. One is the actual Atmos mix from the Dolby RMU recorder and the other is the stems session, which represents what’s in the RMU recorder. In most cases, we are recording up to 192 tracks where the first 64 are the 7.1 or 9.1 bed stems that are used to create the beds (the first 10 tracks of the Atmos) followed by the 118 tracks of the objects.

So how has the fold-down process been? Coming from Atmos down to smaller formats?
Well, it’s not really a fold-down, but actually a re-render. The way the system works, is that the mix in the computer exists purely in relation to a notional three-dimensional box. However many speakers you have in your stage or theater, Dolby just tells the box (RMU) what they are and where they are located, then the RMU will do its best to accomplish a mix that accurately fixes the localization of sound based on those available “resources.” Thus, it turns out that in order to
Best Sound Mixing
WILLIE BURTON | ANDY KOYAMA

Best Sound Editing
GREG HEDGEPATH

Best Picture of the Year
CHRISTIAN COLSON | OPRAH WINFREY | DEDE GARDNER | JEREMY KLEINER

Best Director
AVA DUVERNA

Best Original Screenplay
PAUL WEBB

Best Actor
DAVID OYELOWO

Best Supporting Actor
TIM ROTH | TOM WILKINSON

Best Supporting Actress
CARMEN EJOGO | LORRAINE TOUSSAINT

OPRAH WINFREY

Best Cinematography
BRADFORD YOUNG

Best Production Design
MARK FRIEDBERG | ELIZABETH KEENAN

Best Film Editing
SPENCER AVERICK

Best Costume Design
RUTH E. CARTER

Best Original Score
JASON MORAN

Best Makeup and Hairstyling
BEVERLY JO PRYOR | MELISSA FORNEY

Best Visual Effects
DOTTIE STARLING | SUSAN MACLEOD
go from Atmos to 7.1, the system is told that you’ve only got four speakers: left side, right side, left rear, right rear, and it then has to recalculate your three-dimensional mix to exist with those parameters. The same is true with 5.1—except there are even less available channels. What’s interesting is that the results of these re-rendered outputs are so spectacular that I would consider mixing in Atmos purely to make a better 5.1.

How has your approach to a mix changed now that you’re mixing in an object-based system?

The level of precision in the motion of the objects is amazing even for small details, like if an actor needs to react to something off screen. You can make the off-screen cue come from exactly where the actor appears to be looking. Whereas previously if it wasn’t exactly left or right, then it became less and less convincing to just put an object in the surrounds. If a viewer were sitting in the wrong place in the theater, they wouldn’t get the correct impression of where it was.

This is the other big thing—the system works incredibly well at improving the experience for the audience even if they’re not sitting in exactly the best place in the theater, because an object that’s localized with precision “over there” is still “over there” even if you’re “over here.” It doesn’t seem to shift so much relative to where you’re sitting—which is a huge benefit in realism for the audience.

There are some very straightforward things that are difficult to do in a traditional context in a believable way. For instance, a guy walking down a corridor past people that are talking to each other who are moving the opposite way of the camera. This doesn’t work well in traditional field-based surrounds because voices tend to feel “giant” in the surrounds so you can’t handle the individual voices very well. In Atmos, you can make these subtle moves without them being distracting—and the level of believability is huge. That makes for a better mix and it consequently makes the movie feel like a better movie—which is always what filmmakers are going for.
"VIEWERS CAN HEAR THEIR HEARTS BEATING TO THE SOUND OF AWE."

RICHARD CORLISS, TIME

FOR YOUR CONSIDERATION IN ALL CATEGORIES INCLUDING

BEST SOUND MIXING
MARK WEINGARTEN
GARY A. RIZZO
GREGG LANDAKER

BEST SOUND EDITING
RICHARD KING

"ONE OF THE MOST BEAUTIFUL FILMS I HAVE EVER SEEN"
RICHARD ROFFER, CHICAGO SUN-TIMES

"INTERSTELLAR" IS NIRVANA FOR MOVIE LOVERS.
PETER TRAVERS, ROLLING STONE

"INTERSTELLAR" IS A ROARING ACHIEVEMENT... THE SOUND DESIGN IS MARVELOUS.
CLAYTON DAVIS, AWARDS CIRCUIT

"INTERSTELLAR" REPS THE VERY BEST CRAFTSMANSHIP AT EVERY LEVEL...
SCOTT FOUNDAS, VARIETY

"ONE OF THE MOST SUBLIME MOVIES OF THE DECADE."
JAKE COYLE, ASSOCIATED PRESS

A FILM BY CHRISTOPHER NOLAN

PARAMOUNT PICTURES AND WARNER BROS. PICTURES PRESENT
IN ASSOCIATION WITH LEGENDARY PICTURES A SYNCPHY/LYDIA OBST PRODUCTIONS PRODUCTION A FILM BY CHRISTOPHER NOLAN "INTERSTELLAR" MATTHEW McCONAUGHEY ANNE HATHAWAY JESSICA CHASTAIN BILL IRWIN ELLEN BURSTYN AND MICHAEL CAINE

CO-PRODUCED BY MARY ZOPHORES

HANS ZIMMER

LEE SMITH, A.C.E.

NATHAN CROWLEY

HOYTE VAN HOYTEMAN, F.S.F., N.S.C.

JONATHAN NOLAN AND CHRISTOPHER NOLAN

EMMA THOMAS

CHRISTOPHER NOLAN

LYDIA OBST

interstellar.withgoogle.com
That Was Then, This Is Now

by G. John Garrett, CAS

It may be hard to grasp that, in 1964, radio mics were a very new thing in film with miniature lavaliere mics being unheard of. Yet, mixers mixed and recorded location sound for movies. As technology advances more or less according to Moore’s Law, look how far we’ve come, and how technology has accelerated.

This quarter, I’m going to take a look back over the last 50 years, focusing on advancements in sound technology. As there are so many innovative pieces of gear that have developed, in order to keep the list manageable, I based this on the annual list of Oscar winners. This adds a linear history and a time frame to the developments (although products were usually in use for a couple of years before winning the award). I also culled info from the Motion Picture Academy and manufacturers.

The big news in 1964 was that transistors were still cutting-edge technology. It is rumored that the first use of wireless mics in motion picture work was by George Groves on My Fair Lady, where Rex Harrison was wired. The first RF condenser, the Sennheiser MKH405, went on the market in 1962 as the predecessor to the 415 a few years later.

1965 The Nagra III with neopilot wins the Oscar—even though it was introduced in 1961.

1967 Fred R. Wilson at Samuel Goldwyn won for an “audio level clamper,” one of the first compressor/limiters.

1967 SMPTE timecode is invented for television, but would not find its way into film for two decades or so.

1969 Otto Popelka from Magna-Tech took home the Oscar for an electronically controlled looping system, which made ADR a feasible technology.

1970 B.J. Losmandy won for the development and manufacture of “micro-miniature solid state amplifier modules” which made gear become smaller and better sounding. The “micro-miniature” of the day involved discrete solid state components—as vacuum tubes were becoming “old school.” Today, I think we’d be talking about an 8-pin DIP and a couple of external components.

1971 The Nagra IV-S was introduced. Lectrosonics opened for business.

1973 Schoeps released the Colette series of microphones—industry standards to this day.

1974 Joseph D. Kelley at Glen Glenn, the Burbank Studios, Samuel Goldwyn Studios, and Quad Eight Sound all won for new mixing console designs. Waldo Watson, Richard Stumpf, Robert Leonard, and the Universal City Studios Sound Department won for the invention of surround sound. Clearly, this was a watershed period for new, quieter transistors, with smaller and better parts. It was also about this time that Rycote windshields began.
1975 Ken Schaffer perfected the Schaffer-Vega diversity wireless system. Lectrosonics made their first wireless system.

1977 Stefan Kudelski won again for improvements in the Nagra IV-L and then again in 1978 for his continued developments of the Nagra recorder family. It was also at this time that Dolby Labs won their first Oscar for their first noise-reduction system.

1978 Calrec introduced the Soundfield surround microphone.

In 1980, when I started in the business, the smallest lavaliere I knew of was the Sony ECM 30. The ECM 50, roughly the size of a dime in diameter, was the industry standard electret condenser lavaliere of the day.

1983 Jack Cashin at Ultra-Stereo Labs won for the development of a four-channel decoding process for optical audio tracks. Schoeps introduced the BLM-3 boundary mic.

1984 Donald Anderson and Diana Reiners from 3M won for the development of “Cinetek” magnetic film. Barry Stultz, Reuben Avila, and Wes Kennedy from Film Processing Corp. won for full-coat magnetic film.

1986 Fritz Sennheiser (yes, THAT Sennheiser) won an Oscar for the interference tube directional microphone, even though the first model, the MD-82 was built in 1954. The MKH 416 was, by this time, very common in the industry and had been for a decade or more.

1988 Lectrosonics introduced the plug-on transmitter. Surface Mount Technology took off throughout the electronics industry.

1991 Sanken introduced the COS 11 mic. It was right about this time that carbon fiber fishpoles were first going into production. Before that, it was aluminum, fiberglass, or the Fisher boom. It was also about this time that DAT recorders were released for professional use.

1993 Michael Dorrough won for the Dorrough loudness meter.

“THE MOST IMPRESSIVE ACHIEVEMENT I’VE SEEN ON FILM SO FAR THIS YEAR.”
- MARK HUGHES, Forbes
1995 saw winners from Digital Theater Systems for DTS sound and Dolby for Dolby SR-D. Lectrosonics introduced their UHF diversity radios, the 195D.

1996 K-Tek made their first carbon fiber pole and Zaxcom introduced the Deva I and Deva II.

1998 The first Oscar for digital waveform editing goes to Thomas G. Stockham, Jr. and Robert B. Ingebretsen. James A. Moorer won for bringing DSP to audio editing for film. It was also this year that Manfred Klemme won for his K-Tek boompole.

1998 also saw the birth of Sound Devices, LLC.

1999 AMS Neve won for the Neve Logic, the first digital post console. Vivienne Dyer and Chris Woolf won for the Rycote modular windscreen system (no doubt for improvements to the 1974 original) and Leslie Drever won for the Lightwave shock mounts and windscreens.

2000 Akai, Advanced Digital Systems Group, Timeline Inc., and Fairlight won for digital dubbers. It appeared that this digital thing was going to catch on!

2001 The first digital wireless microphone was introduced by Zaxcom. Sound Devices shows the 442 mixer at NAB.

2002 An Oscar for Technical Achievement was awarded to Tomlinson Holman for his work and implementation of improved motion picture loudspeaker systems. (THX)

2002 Glenn Sanders and Howy Stark won for the Deva digital recorder, the first file-based recorder for motion picture use. Lectrosonics introduced its 400 series.

2003 Digidesign won for Pro Tools. Aaton had a working Cantar going into production. Sound Devices had the SD302 at NAB which began shipping soon after.

2004 Cedar DNS 1000 noise-reduction technology took an Oscar. Zaxcom Deva IV and V were released. Sound Devices began shipping the 744T.

2005 Schoeps released the CMIT5. Sound Devices came out with the SM series.

2008 Sound Devices released the 788T.

2009 Zaxcom introduced ZaxNet.

2010 Zaxcom released the TRX series of ZaxNet-controllable wireless transmitters with internal recording transports and the QRX100 receivers.

2011 We got the Zaxcom Nomad. People started building gear with DANTE interfaces.

2013 Zaxcom released the TRX900LAnc with Never Clip™.

2014 Lectrosonics introduced the DB–encrypted digital wireless line. Rycote showed their Super Softie at NAB. Zaxcom released the QRX200 wideband receiver and corresponding TRX transmitters. The Ambient Clockit Network also appeared at NAB.

This list is far from complete, but I think it gives you an idea of how far we’ve come in just 50 years!
FOR YOUR CONSIDERATION

BEST ANIMATED FEATURE
BEST SOUND MIXING
BEST SOUND EDITING

SEE IT ON THE BIG SCREEN
For our screening schedule visit us at WALTDISNEYSTUDIOAWARDS.COM

©2014 Disney
FOR YOUR CONSIDERATION

BEST SOUND MIXING

DAVID LEE
PRODUCTION SOUND MIXER

JON TAYLOR, FRANK A. MONTAÑO
RE-RECORDING MIXERS

UNBROKEN
THE UNBELIEVABLE TRUE STORY
Words of Wisdom

Over the past 50 years, the Cinema Audio Society has held a distinguished membership of incredible innovators, craftspeople, artists, and storytellers. Individually, every day we professionally live many of the organization’s missions of educating, informing, and aiding in the advancement of cinematic and television sound. As the organization celebrates its semi-centennial birthday, the CAS Quarterly wishes to provide recognition and insight by sharing a small collection of advice from some of our most superlative members and Career Achievement Award honorees.

At the same time as the CAS was being born, I was going around New York City, telling everyone I was a soundman. I’d done one job.

I was hired to do a second job—to record a town meeting where 12 people were talking in a room. I didn’t know how to do this, so I hung three microphones from the ceiling—one on the right side of the room, one on the left side of the room and one in the center. I turned on all three microphones, turned their volumes up to the max and left them all on the entire meeting.

“Newman,” said the producer when we listened to the tape afterward, “that’s the worst f*cking sound I’ve ever heard in my LIFE.”

He was right.

I hid in my apartment for three weeks.

I didn’t want to go back to my old job—copying cassette tapes for a penny a tape and sweeping music studios—so I went looking for more jobs.

Slowly, people forgot about the town meeting and slowly, they began to hire me.

If I have any words of advice, I guess it would be the following: You’re bound to fail. It’s the nature of life and the nature of our business. But keep going. The more you keep going, the luckier you get. Try, little by little, to fail better.

—Chris Newman, CAS
Career Achievement Award recipient

I believe there are multiple steps to our growth in post-production sound. When we start out, we are required to learn the “craft” of mixing, the tools we use, [and develop] our “EAR.” This comes with exposure to others who have done this work before us. We work in a mentor/student art form. In my opinion, no one is born with the skill set.

After we are comfortable sitting behind a console with a backfield of people watching us do a “live performance,” it’s now time to study the “art form” of mixing. We must open ourselves up to the creative sensibility of storytelling with sound. We incorporate our invisible art form into focusing the audience into feeling something emotionally, not sonically.

Hopefully, we get very lucky, and we touch an audience uniquely “with” our senses and touch.

—Scott Milan, CAS
Career Achievement Award recipient

Trust your ears. They are the best plug-in you have.

—Richard Lightstone, CAS
Past President of Cinema Audio Society

I’ve been blessed over an extended period of time to be able to practice my passion for good sound on television. However, the paradigm that provided this opportunity has changed dramatically. It is a particular challenge for all who now work in television sound to foster proper delivery of our craft to avoid having to say, “What Happened to My Mix?”

—Ed Greene, CAS
Career Achievement Award recipient

I have been a production sound mixer for more than 35 years. You really have to love your job, and possibly be a little bit nuts (ha ha ha). If you’re in it for the money, get out now!

To anyone who wants to have a long and successful career … It takes persistence, perseverance, and patience. You will have ups and downs. Just hang in there! Be thankful and grateful that you are in the film and television industry and lucky if you are working.

One final thought I’d like to share: all you can do is all you can do, and all you can do is enough. But make sure you do all you can do.

—Willie Burton, CAS
Career Achievement Award recipient

The Art of Listening—that’s what it is all about for me. All my life, I have enjoyed listening to the world—and there is a special joy in the experience and the process of understanding and defining the world and its inhabitants through sound. I will say that in the work we do, we are often required to listen to many things that are not too pleasant, but I still enjoy the process, the detailed and disciplined view. It is a cliché, of course, “do what you love, love what you do,” but in my case, it really does apply.

—Jeff Wexler, CAS
Career Achievement Award recipient

Believe in your talents, abilities, taste, creativity. In other words, believe in yourself—and don’t waste time worrying about what anyone else is doing, thinking, or saying. And when you do experience a level of “success,” don’t believe too much in your own press—either good or bad.

—Dennis Sands, CAS
Career Achievement Award recipient

One of my sound heroes is Treg Brown, sound editor for the Road Runner cartoons and many other classic Warner Bros. shorts. When I met Chuck Jones, I asked him what Treg Brown’s secret was. He said Treg “never used an appropriate sound.” No better advice has ever been uttered.

—Gary Rydstrom, CAS
Career Achievement Award recipient
1964-74

Production

Introduced to Hollywood in 1961, the Nagra III recorder was a revolution in portability, so much so that it garnered Kudelski SA’s first Academy Award (a technical plaque) just four years after its introduction. “There was virtually no film made from 1961 until the early ’90s that did not use the Nagra,” Chris Newman, CAS Career Achievement Award recipient, said. It affected the very way films were made, and was given credit for that by documentarians and French New Wave directors, among many in Hollywood.

Post Production

Mag film running on dubbers for mixing tracks to a 35mm film recorder had been commonplace for years. Mixing was all by hand, and insert ("punch in") recording and high-speed interlocking machines made rock-and-roll mixing possible and fast (In an earlier era, it was necessary to rehearse and then record a whole reel at a time). Forward and backward interlocking systems allowed mixers to listen and set mix parameters in reverse and pick up productivity, something we’ve lost today. It took three mixers on big consoles for feature films of reasonable complexity, concentrating on dialogue, music, and effects. Reel changeovers in central machine rooms took considerable time—so some dub stages were equipped with Ping-Pong tables to have something to do on the stage while the machine room operators were very busy changing over.

The then-standard Academy mono optical soundtracks for release prints kept film sound quality delivered in cinemas just about where it had been technically since the 1930s. The mixing sound art became highly evolved within the severe limitations placed on it by the frequency and dynamic ranges of the release print—it’s like mixers evolved to make the best black-and-white engravings ever, but they couldn’t represent color. Frequency range, dynamic range, and spatial capability were all severely...
limited. Even so-called “noiseless” tracks still played with audible hiss, despite the severe high-frequency roll off of the Academy curve. This response curve combined with the limited response of standard theater loudspeakers to make “telling a story,” quite literally, close to what you could hear being told over a telephone.

While multichannel stereo had a long history with its introduction being Fantasia (1940), it passed out of use during WWII and was revived in both 35mm and the newer 70mm formats in the 1950s—mainly to compete with the emergence of television. However, by the 1960s, it dropped out of mainstream use because of the expense of striping and sounding prints. Still, some very notable films like Lawrence of Arabia (1962, just before CAS’s first decade began) and 2001: A Space Odyssey (1968), were produced for limited release within this timeframe.

Some conventional mono mixes pushed the envelope even in those days. Butch Cassidy and the Sundance Kid (1969) used the low-frequency sound of horses galloping off-screen as an on-going threat to indicate that the authorities were closing in on the scofflaws. In other contexts, putting “too much bass” on the optical soundtrack was frowned upon. Because it takes more bass to sound equally as loud as higher frequencies—and having strong bass ate up headroom—Butch Cassidy bent the mold. This foreshadowed the use of a 0.1 LFE channel that was to come years later.

One mixer figured out how to get rid of the ground noise present in the optical track during silent passages in The Exorcist (1973). CAS Career Achievement Award recipient Buzz Knudson had been a sound camera operator before graduating to mixing, so he knew that those two skinny lines that a variable-area optical track narrows down to in “silence” still passes light, and you heard the grain and dirt of the track. So he spliced clear leader into every sound negative for the silent passages. Voilà: black track on the prints when it needed to be silent—and it really was!
Buzz also knew something else. “One of Knudson’s greatest skills as a sound mixer was working with people. It’s a real people-oriented business,” Chris Jenkins said in Knudson’s obituary in the Los Angeles Times. “You spend 12 to 14 hours a day, six or seven days a week sometimes, in the studio, so it’s being able to handle really big-time personalities”—something still true to this day.

Episodic television used much the same methods of film post, with mag film editing and dubbers—just usually fewer of them. 35mm Mag Stripe film with one recorded track (and a balance stripe so the film would roll up smoothly) was mono.

**1974-84**

**Production**

Boom shotgun mics and Nagras still dominated, but lavaliere body mics with low-power radio transmitters and corresponding receivers began to be used. Mixers had to attempt to seamlessly combine the various sources to one—or with the introduction of the Nagra IV-S—sometimes two channels.

Production sound people turned out to be the most technical personnel on the set. So, many were pressed into multiple duties: hooking up the star’s Walkman to their trailer sound system, charging batteries for walkie-talkies, and making and debugging video systems come to mind.

**Post Production**

This decade was seminal for film sound quality, largely driven by gains in release print dynamic and frequency ranges. While it isn’t instantly obvious, the application of Dolby A noise reduction on both 70mm and 35mm release prints permitted a dramatic extension in frequency range. That’s because the hiss of the magnetic or optical soundtracks, formerly hidden behind a high-frequency filter, was suppressed by noise-reduction companding from 10 dB to 15 dB, with the latter number applying to higher frequencies. Lower noise meant it was possible to extend the bandwidth and make for a much more satisfying frequency range, essentially flat on the medium to 12 kHz. Since a better print showed off the hiss of multi-generational dubbing, the noise-reduction was also applied to the dubber generations, making cleaner masters.

Among the landmarks in this frame were *A Star Is Born*, the first Dolby Stereo release in 1976, and certainly *Star Wars* in 1977, which brought a whole new level of awareness of film sound to the general public. That was enough for the Academy to institute a special Oscar for sound effects editing for Ben Burtt, which lasts to this day as separate but equal to sound mixing. It also brought the...
Baby Boom channel, which eventually became the 0.1 channel of 5.1-channel sound.

Just two years later, a second phase of innovation occurred with Superman and Apocalypse Now. Repurposing some channels on 70mm prints, both Baby Boom and stereo surrounds could be accommodated. Since mono surround is an oxymoron (you don’t really get surround because of psychoacoustics), these were the first pictures since Cinerama that had full surround capability known from the earliest film stereo experiments at Disney in 1939. These were also in a format that would later be dubbed “5.1.”

Console automation first comes into play for the movies in this decade. One VCA type was used on Apocalypse Now, but others tried too. Some systems, suitable for music, were just overloaded and wouldn’t play back the complexities of film mixes, which, as it turned out, were a whole lot more complicated than music ones. Then, motorized moving fader automation came along, and that function was so much more direct—just reach out and change the fader as needed—that it came to dominate mixing. Eventually, its impact was on jobs too: mixes that had long been three-person jobs became two-person ones, and in some cases, even one-person ones.

Even though fader automation came in, there were still complications for film sound mixers that didn’t face other parts of the industry, in particular, dialogue processing.

Former CAS President, Career Achievement Award recipient, and two-time Oscar winner Bill Varney had an outboard rolling rack of gear for dialogue processing which went far beyond what was found in consoles. And he kept it under wraps as a part of the secret sauce of what it takes to mix dialogue—which he did supremely well. We can guess today that there was a UREI filter set followed by a Dolby Cat. 43—another oddball use of Dolby A technology, this time as a single-ended noise-reduction system that also garnered an Academy Award. Next in line was probably a more sophisticated equalizer than those built into consoles, for going in and fixing just that room boom or just that lack of presence on a lavaliere recording. Then would come a de-esser, very needed in the era of optical soundtracks with their cross-modulation distortion making a hash of “s’s.” Finally, a limiter was applied, to tailor the sound to stay within the boundaries of the medium. The exact order, and even the exact equipment were kind of kept under wraps in those days.

Television starts using multitrack recorders locked up with timecode during this decade. Sound effects were laid up to a 24-track in sync, from broadcast cart machines in one variation. “Lay down,” “lay over,” and “lay back” terms come into use for taking original video tape audio off, combining it with other audio, and inserting it back onto the Edit Master video tape.

For both film and television mixing, the Lexicon 224 and its variants provided digital reverberation highly

Walter Murch, CAS wins an Academy Award for his sound work for Apocalypse Now

THX pioneers efforts to provide uniformity across cinematic playback systems
usable for the first time. Lucasfilm even persuaded its developer, David Griesinger, to supply it—and only it—with some deliberately bad sounding reverberator programs so Ben Burtt could simulate the interiors of space ships. He wanted “Kansas City Holiday Inn room,” and it was provided to him—although it did take some persuading to make something bad sounding!

Meanwhile, on the Paramount lot, Soundstream began offering digital sound editing services in 1981. One of its key features was the ability to produce cross-fades of any length. Most edits on mag were one-perf diagonal ones with an effective cross-fade time of 10ms. The alternatives were to use highly volatile “Mag Wipe” for editors to create longer fades, or for mixers to perform the cross-fades very precisely in sync with the need. Soundstream cross-fades could be shorter, or much longer, taking some of the burden off mixers—especially for music where a long cross-fade could be best for a string section between two takes.

With improvements in frequency range and the signal-to-noise of the post and print systems, the venerable loudspeaker systems in theaters, designed using the improvements that came about because of WWII technology and introduced to theaters in the late 1940s, were surpassed in frequency range, uniformity of coverage of the audience, and smoothness. While THX pioneered these efforts, within a few years, most cinemas and dub stages used similar approaches.

**1984-94**

**Production**

The first use of digital machines in production begins with the introduction of DAT in 1987. At first, these were treated as backup to the traditional Nagras, but swapped places over a period of some years. This format was designed as a consumer one, to replace the compact cassette, and really didn’t have the reliability for a professional application. Kudeski introduced the digital Nagra D, but it had a 30/30/30 problem: it weighed 30 lbs, it drew 30 watts, and it cost $30k. Nevertheless, it was indeed a pro format, but it couldn’t make it against the much cheaper DAT machines. By 1996, a CAS member stopped using Nagra backups for primary DAT recordings—then the DAT tapes didn’t play back on a very high-budget picture for a day, which had to be looped. Thankfully, through technical Darwinianism, the day of the DAT has passed.

Television production was affected when the Tascam DA-88 was introduced in 1993. Then, eight tracks could record the separate stage mics on different channels, leading to greater post flexibility. Typically recorded were mono dialogue and effects, stereo audience for sitcoms, and then iso mic channels.

**Post Production**

Mag film recording got an update in this era with better, more modern, film stocks, better heads, and Dolby SR. That’s the thing about analog: it’s subject to continuous
improvement. Contrast that with digital formats, where the ultimate performance is controlled by a few parameters and won’t improve on the initial conversion, so it had better be right.

The DA-88 soon was pressed into post to replace dubbers. While many a mixer lamented that it couldn’t play in reverse, the low cost and the ability to chase timecode made it useful for a time—until the next major revolution was to come along: nonlinear recording/editing.

The Digital Audio Workstation era begins. $50k ones with film-specific features were displaced over a few years by multi-channel Pro Tools systems.

MTS Stereo went on the air in this interval, and this pushed back into post where the need for stereo was important. A possibly apocryphal story is that an episode of *Miami Vice* went out over the air with the effects stem out-of-phase because a head was mis-wired, and the result was the most surreal episode ever. Sonny pulled the trigger all right, but almost all the viewers—hearing a mono sum of out-of-phase content—only got, well, basically, nothing but a puff of smoke!

Digital sound on film prints began with Cinema Digital Sound. Replacing the analog track area with digital bits proved fatal to this early system, since there was no fallback analog track to rely on when things went wrong. However, within a few years, three competitors sprang up: DTS, Dolby Digital, and Sony’s SDDS, taking us into the digital era in cinemas.

**1994-2004**

**Production**

Toward the end of this decade, digital audio recorders based on hard drives and removable media began to appear. These sped up delivery, logging, comparison of notes at the end of the day with the camera department, and so forth. This improves productivity but doesn’t make for quieter sets! As younger, less well-trained directors came on the scene, some inherited from music videos, less discipline of the sets meant less good production sound.

**Post Production**

In general, the public thinks of a prime development in media as “The Digital Revolution.” Those in the business know that substituting a linear digital tape format for an analog one didn’t really change things all that much. Sure, maybe it had more dynamic range, but insofar as affecting working lives it meant little.

The “real revolution” was the nonlinear one. To go from mag dubbers that had to be spun through a thousand feet of film to get to the end of a reel, to a set of DAWs on the stage that can instantaneously move throughout the reel, to reel changeover in a few minutes, and to have edit/change rooms evolve from a bench and a reader off the stage to a workstation operated by an editor wearing headphones on the stage—now there’s the real revolution.
This revolution crept in progressively and is now standard. Walter Murch, CAS, in his book *In the Blink of an Eye*, bemoans the fact that editors have lost thinking time in this transition. It was running the film from end-to-end of the reel at high speed that led to time to think, and also to observe the movie at high speed and think about the scenes. “Something’s lost but something’s gained in livin’ every day.” –Songwriter Joni Mitchell

### 2004-14

**Production**

Tools get more sophisticated. There’s more multi-channel recording of raw mics. Although this was pioneered on *Nashville* with an eight track in 1975 (which let the actors do improvisation on separate radio mic tracks), at the time, this was a post-production nightmare. Today, while producing parallel stories where everybody talks over everybody else is still not commonplace, recording the radio mic of everybody on the set is, along with the traditional boom to give the sound a little air. Dialogue overlaps still cause editorial problems, but free up the actors, and no technology can solve this problem. Even picture editors are cutting up to eight or more tracks of audio before the sound editors ever see the content on some pictures.

On a few major events like the Academy Awards and political conventions of the parties, there’s another huge job that falls to audio—spectrum coordination. While this is true of any show with multiple radio mics at some level, in these specialized cases, there are hundreds of RF transmissions to consider, and it takes broadband antennas and a spectrum analyzer of some sophistication to sort out everybody’s place in the world. Naturally, this becomes an audio problem, even though plenty of the transmissions are of video, walkie-talkies, etc. Why? Because, once again, the audio folks are the more technically savvy ones around. Remember the world before DITs? Those specialized people work with picture to get it into the right shape for transmission/recording—and that whole job category used to be just a small part of a soundman’s job.
Post Production

Plug-ins in a huge variety of types offer nearly all that former outboard hardware did. They are the story of the last 10 years. Specialized plug-in systems for cleanup allow for camera recordings on disposable cameras to take us on board an Alaskan crab boat, or to eliminate the muffling effect of a hug on radio mics for the latest reality show, for instance. About the only thing that’s not as good or better than digital these days is vast varispeed, which it’s good to keep an analog machine around for. CAS Career Achievement Award recipient Gary Rydstrom used the head crawl mode on an old U-Matic to produce some very bassy sound effects, for instance. So don’t throw away all those analog machines, especially ones with great varispeed range, because you never know…

Today, assistants have to be “Bit Slingers,” familiar with every file format coming down the pike. It’s hard for mixers to keep up with the onslaught of technology in all the peripheral areas, and there’s greater reliance on the young folks brought up on computers. But then there’s where the next generation of mixers is going to come from—those who develop their ears and watch you, CAS members, do your job well.

5.1 channel sound has been around since the early 1990s, so it is also undergoing change. Wider frequency and dynamic range isn’t necessary with current digital cinema standards, so progress is toward new, higher channel count, formats. Once again, there are a variety of approaches on offer, and a lot of factors to drive success, but ultimately it is audiences who can appreciate a mix like Gravity (to name just one) that will make a market for these products.

Compiled from the memories of CAS members by Matt Foglia and Tomlinson Holman.
Sound Cart
by Devendra Cleary, CAS

Introduction

I’m not sure how often two people get together and talk about sound carts for hours, but that is exactly what fellow “Sound Cart Enthusiast” Jeff Wexler, CAS and I did recently. It was amazing to get to speak with, not only one of the greats in our craft, but also with someone with a similar outlook on building sound carts as I. Here, what already exists is never perfect and having something specific in mind that doesn’t exist sparks your creative mojo into action. Jeff reminisced to me:

“The first movie that I did [Cool Breeze], I had to get some sort of a sound cart together. I had seen that there was a company called Skyline that a guy named Tom Carol actually built the first sound cart that you could go into a place and either rent or buy. His cart was very much like what the PSC cart ended up being. With fairly large, bicycle-type wheels, three shelves, and theoretically it can be folded up. I almost bought one of those carts. But I didn’t like the way it was made. So I went to Sears to look for something, maybe from Craftsman, maybe some kind of a tool chest. I walked through the department that was selling televisions. I went to the sales person and I said, ‘I’d like the cart.’ They said, ‘Well, we’re having a special today, the television and its own cart!’ I said, ‘No I just want the cart.’ And finally, I convinced them and they took the television off and they sold me just the cart for like $25. I rebuilt the whole thing. I put larger casters on it, I put some rubber matting on the top and that became my first sound cart.”

We talked a lot about how we get ideas when we see other people’s sound carts. He spent some time with Art Rochester, CAS on American Graffiti and Art’s boom operator had some very innovative design ideas:

“Michael [Evje] was the first person who ever built a sound cart that was truly a vertical cart with sliding shelves. It ended up being pretty much the standard for a lot of people if they weren’t going to use your basic Magliner style where everything gets spread out. The beauty of Michael’s design was everything...”
was bolted to the cart so that your wrap and setup time were minimal. As soon as you could get it off the truck, you were ready to roll. Everything was wired ... Stuff we take for granted now. It didn’t used to be that way. You would move the cart off the truck, take the Nagra out, set it on the Sela mixer and then you connect everything, then you take the cables out and hang them on the cart. It would take you half an hour to get ready. In the morning, it wasn’t that big of a deal to set up, but at wrap, I wanted to get out of there! So, I built a sound cart similar to Michael’s, gave him full credit for coming up with the design, and that became the basic design for all of the carts that I built.”

Times have changed and today’s sound carts wear this evolution from head to toe. “The cart-based mixing market” is barely even a “thing,” and it even continues to shrink. I would venture to guess that more resources are being allocated for the development of “bag-based” sound systems. Meanwhile, track count capability demands are skyrocketing. Our manufacturer, as brilliant as they are, can’t always anticipate these changes beforehand—and lengthy development periods create a gap when we repurpose gear intended for bigger markets. Jeff illustrated my thoughts on this with the historical wisdom I was looking for:

“What I was referring to was sort of ‘ancient history’ with the Nagra and Sela mixer. All of that equipment was absolutely purpose-built for exactly what we do. But during this period of time when there is this huge crossover, we’re starting to take stuff from the music world and we’re starting to take stuff from the computer world. It’s not purpose-built for us. It was purpose-built to go in a rack. It was purpose-built to go in a studio console. All sorts of things that are really incompatible with what we were doing with our sound carts—which were so beautifully built for exactly what we had to do. But we aren’t doing what we used to do. Like how we used to work with the Lectrosonics Quadbox and you would bring it out and set it up on the cart for the DAY that you had to do the wireless shot! Now, your wireless can’t be sitting on the truck; it’s got to be there, you got to have all 12 channels ready to go!”

S, M, L and the End of One-Size-Fits-All

If you are currently in a conundrum on how to build or rebuild your cart setup for the ever-changing landscape, demands, and pace of production, you are not alone. Take a look at the history of the sound cart. Our craft is young enough to have not experienced history repeating itself multiple times over—until now. If you have built, or even thought about building a 16-track (or more) rig, you are also not alone. Now, if you have built a miniature sound cart, which can sometimes be a glorified place to set down your sound bag, you should also take a look at history. If you have decided to not succumb to the growing needs of high track counts due to high cast counts leading to high wireless counts, but instead keep your rig limited to around eight inputs and production sound specific gear: you are definitely not alone. I definitely have no criticisms for anyone’s choices on how they have decided to build out their rigs. But I do have an observation and relatability to the head-scratching conflict that goes into how to proceed with what size of a build to go with in this current time period.

Over the last decade, with the growing needs of high track counts, multiple recorders for redundancy, and high-performance wireless, production sound professionals have had to fill this need with a combination of production specific gear, and sometimes music and studio gear. Our power requirements more than doubled...
when going this route. To put it quite simply, some of our sound carts have gotten WAY bigger. Sometimes so big that our accessibility to difficult locations (treacherous terrain or small buildings with no elevators, etc.) has suffered and we've had to compromise with distance by way of remote antennas or remote RF carts near the set connected to the sound cart. Again, while some production sound professionals have chosen to NOT let their carts grow to the large, heavy Yamaha 01v centric rigs and keep it so they max out at eight input sources, with low power consumption and subsequently low weight, many have realized the compromise here with the lack of ability to sometimes perform in today's demanding production scenarios. This very recent shift has created two schools of thought: The "middle-sized-cart-keepers" mentioned above, and the folks who have built up their large, heavy "do-it-all" carts and have settled into the realization that they may need to begin constructing their "mini-rigs."

The reason this is fascinating to me is, though I'm one of the guys in that second school of thought, I sometimes suffer from seeing greener grass on the other side. The conundrums are this: Obviously cost. If you're in the second camp mentioned, you will be spending a lot of money on a mini-cart that may spend a lot of time just sitting on the truck. The second conundrum is the choice for which rig to use often has to happen on the fly. If I wasn't on a scout, I may not know ahead of time if we're shooting in an inaccessible location that requires a mini-cart. What this scenario can often cause is for me to be envious of people who chose to keep just one "middle-sized" rig that works for almost everything. See the struggle here?

The Good 'O! Medium-Sized Rigs
Allow me to describe what I feel makes up a glorious "medium-sized rig." This example comes from what had eventually evolved from the years post-dating our beloved Nagra era, into the years encompassing the DAT era, which then became the years during the OTS decade to where the dust settled into nonlinear, multi-track recording. I'm going to settle in on the year 2005 (give or take two years).

Production sound rigs generally consisted of a mixing panel like a Cooper, Audio Developments, or Sonosax (or four years later, a control surface/recorder by Sound Devices or Zaxcom) that could accommodate eight analog input sources with the possibility of 4–6 wireless receivers along with two boom sources—that may either be hard-wired or wireless. A recorder with 8–10 tracks, one Comtek feed, possibly one wireless private-line feed, a couple of video monitors, a DC–powered distribution system, and sealed lead acid block battery that you would only stress with a 5–7 amp load. These rigs may have been small PSC–type fold-up carts, Magliner Junior or Senior carts or small rack cases attached to a base.

The Good 'Ol Medium-Sized Rigs
Allow me to describe what I feel makes up a glorious “medium-sized rig.” This example comes from what had eventually evolved from the years post-dating our beloved Nagra era, into the years encompassing the DAT era, which then became the years during the OTS decade to where the dust settled into nonlinear, multi-track recording. I’m going to settle in on the year 2005 (give or take two years).

Production sound rigs generally consisted of a mixing panel like a Cooper, Audio Developments, or Sonosax (or four years later, a control surface/recorder by Sound Devices or Zaxcom) that could accommodate eight analog input sources with the possibility of 4–6 wireless receivers along with two boom sources—that may either be hard-wired or wireless. A recorder with 8–10 tracks, one Comtek feed, possibly one wireless private-line feed, a couple of video monitors, a DC–powered distribution system, and sealed lead acid block battery that you would only stress with a 5–7 amp load. These rigs may have been small PSC–type fold-up carts, Magliner Junior or Senior carts or small rack cases attached to a base.

The simplicity and reliability of rigs like that sound so nice! Manageable, all 12V DC power consumption, purpose-built production sound gear, and a relatively lightweight, flexible package that can operate in any location. I can’t stress enough how envious I am of this mode of operating. But what if it’s not enough? Could you introduce a second mixing panel for larger cast count scenes? Would you use a second rig entirely for those days? Or, would you turn down those jobs altogether? Or would you choose to build a rig to accommodate these demands…?

The Contemporary Big Rigs
Well, folks, if you have decided to build out your rig to accommodate 12–16+ input sources, digital routability, primary 16-track recorder, backup 16-track recorder, three different IFB mixes with the ability to route any source at any level to any of those mixes, and three video monitors;
you will now also most likely have: you guessed it ... increased power needs with the inclusion of a DC to AC inverter, a charger, and additional large battery packs. (Tech Spec Alert!)

I find it important to discuss electricity in detail here because it may possibly be one of the bigger hurdles in building a sound cart of this size and capacity. A cart like the one described above can draw around 14–15 amps of 12V DC power! Don’t even worry about those LED lighting strips because, depending on dimming, they will probably draw less than 1 amp. The popular Yamaha 01v will settle in at about 7 amps at 12 volts (84 watts) total. What I mean by “settle in” is it WILL fluctuate between 6 and 11 amps. Two Lectrosonics Venue receivers draw 3 amps together, the garden variety 12V DC–powered multi-track recorders are around 1 to 2 amps each. IFB transmitters can total out to be around 1.5 amps for all, video monitors are around 1–1.5 amps, a speaker might be about the same and, if you have any Dante networking gear or a Thunderbolt interface, those tend to draw about 1 amp each.

When you’re calculating how much power you’ll need from the AC power distros on set (which are a 120-volt source), multiply the amps (13–15) by the voltage of your power supply (typically 12 volts) and that will be between 156 and 180 watts—which translates to about 1.3 and 1.5 amps. This is the current going through the 120-volt AC stinger to your sound cart’s power supply. This is pretty high for sound carts, but we can still tell the Juicer: “Oh, I barely draw anything.” To review: Amps times voltage amount equals watts being consumed (I*V=P). So, we should switch gears to thinking in terms of watts-hours instead. To put it in perspective, know that the Tesla Model S has an 85 kW-h battery capacity! A typical 12-volt battery for a sound cart is around 20 to 40 amp-hours, which will power a 10-amp cart for two to four hours. A Tesla Model S battery has a capacity of 242 amp-hours, but the batteries of the Tesla Model S are of much higher voltages—so this is why we must use the true measure of power: watts. The Tesla Model S has a 350-volt battery and will power the 120-watt sound cart described for 708 hours, or about 60 twelve-hour days? (Or 51.5 fourteen-hour days ... ugh) Wow, right!? Anyone else’s brain gears cranking away at how to turn a Tesla power supply into a sound cart power supply? I really don’t enjoy doing math, but I do enjoy figuring out a stable power system. And speaking of DC power systems...

Luckily, we now have more options of battery chemistry than we ever have. The weight of a sealed lead acid battery over 60 amp-hours can prove to be slightly debilitatingly heavy. Now we have two different production sound specific manufacturers that build all-inclusive DC power distribution units that have built-in batteries with a battery chemistry called LiFePo (lithium iron phosphate). Until we run out of mined lithium because of the consumers taking it all, this battery chemistry is here to stay and it is MUCH lighter than sealed lead acid and has a lower self-discharge rate, allowing them to stay charged longer during downtime. Win-win!

When building a full-sized cart, weight is often not a consideration. Once you load that thing down with the “full-sized” components mentioned above and not the “bag-sized” components mentioned below, you will eventually realize that the equipment weighs what it weighs and once it’s all built in there, any rig can be quite heavy. Now, what about building a lightweight, small footprint cart? For the sound cart enthusiast (and there are more of you out there than ever before ... judging from the two Parade of Sound Carts seminars), this is where the real fun starts!
Mini-Rigs

Why a “mini” cart? In the introduction of this article, I may have brushed past the importance of this new phenomenon. Calling it just a glorified place to set down your sound bag is an unfair summarization of what is upon us. Why not wear the sound bag? Why would you want a little cart to lug around when you’re shooting “run-and-gun” style? Sound carts come in so many varieties as it is; the advent of this mini-cart revolution brings even more creativity to the sound cart-building workshop. The possibilities are endless. I’ve seen my peers building mini-rigs over the past couple years and it’s very exciting. It’s important to mention that in very recent years, “bag-style” audio components have become WAY more versatile, robust, high capacity, and lightweight. Demand spurs innovation and, in less than a decade, we have gone from bag rigs that require several heavy pieces just to achieve a track count of four, to [relatively] lightweight rigs that can record 16. Mixers and multitrack recorders have merged into the same piece of hardware, wireless receivers have diminished in size and weight, battery distribution systems have become more versatile, and the variety of the bags themselves have become extremely vast with four or more manufacturers serving users.

Bags, just like carts, are their own creations. Similarities exist, but no two are alike, and it’s impossible for a bag manufacturer to build the “perfect bag” for everyone. The same goes for the “perfect bag cart.” Only a couple of pre-made units exist right now, but I’m sure we will soon see more. Rastorder was the first manufacturer I noticed to offer one. PSC soon followed suit with their Euro cart. If you thought the original PSC fold-up cart was already small, wait until you see the Euro! With these “bag-carts,” it’s not just about minimal square-footprint, it’s about low weight. You can remove the heart of the system (the bag with portable audio components) and feasibly lift your mini-cart anywhere you need as easily as schlepping an empty hand truck. You could lift it up a steep flight of stairs to a roof with no elevator access. You could go down to the sand on a beach. You could fit into an old 200-square foot walk-up apartment in New York City. You could even throw the thing over a fence into a backyard where accessibility has been cut off by the lamp operators pre-placing a line of 20ks through windows of the only accessible route to said backyard. See the appeal here? There was a time when all sound carts were similar in size to today’s bag carts. They were just tiny carts with a shelf for your Nagra and a Sela mixer and possibly a block battery. Wireless? Those were on the truck. Monitors? Um, no. When I see mini-carts, I see a return to when filmmaking was done in a more intimate fashion. Are we possibly going back to this? Maybe. But probably not exclusively. As mentioned above, the heavy demands are still there and need to be met. I’m just seeing a variety of filmmaking styles and specific needs. If you would love to be close to the action, but a mini-cart just won’t cut it, there are some other options to explore.

Remote RF Carts

The remote RF cart option is something that has been adopted by many high-profile sound mixers for many years. This is for when you are shooting in tough locations where the elements may pose challenges for your gear. This is a throwback to the early 1930s, when the challenges of early talkies were starting to be overcome with the advancement of equipment technology and it was finally possible to record sound for exterior scenes and not just inside
a “silent stage.” Engineers and technicians from the radio industry, and the trucks to transport and contain this large equipment, helped bring about the maturing of early sync sound motion pictures. Studios could finally release movies that were “all talking!” Thanks to both recording technology advances and theater amplification advances.

Working with this configuration, more contemporarily approaches came about to serve the needs of prestige pictures that needed all the bells and whistles sound could offer even when in a deep, difficult location. As mentioned above, pre-2008 portable bag options were not as robust or versatile as they are today. At this time, this RF remote cart option came about, the best bag you would be able to put together was a 4-input system with a separate recorder. Or you could tear your Fostex PD-6, Deva, or Cantar out of your cart and throw it in your bag if you needed more tracks.

For large-scale productions, I can see the lack of appeal with going this route at the time. Building a remote RF cart that works close to the set, that is connected to the production sound mixer—who is set up inside a truck or a trailer—can oftentimes be the best option. You have your “big-rig” set up with all of your tools and those tools are protected. You have your RF receivers and IFB transmitters closer to the set, thus their performance is greater. Linking these two systems for great distance is often done using an Aviom Pro 16 system or a Roland S-0808 system and is known as “digital snakes.” I’m hoping to see more portable (12V DC–powered) Dante systems that can serve these purposes as well. Our own Lectrosonics builds a DNTBOB 88, which is 12V DC–powered and is an 8 in 8 out Dante breakout box. At this current time, there are several Dante-enabled I/O digital snake systems, from companies like Yamaha (with their Nuage line), Atlas Sound, Xilica Audio Design, Attero Tech, etc., but they require AC power, which may or may not be an issue. That list will probably grow over the next couple years.

This can also be done using a large multi-pair snake with the analog signals traveling down those multiple lines, but the weight and risk of isolated lines going bad makes this a risky option. Aviom systems and the like convert the signal to digital form and squeeze it down a set of CAT-5 cables. At the trailer end, it then converts the signal back to analog. This setup can be a lifesaver, a gear saver, and a wireless signal strength saver.

The Case for the Case-Based

No matter what style of cart you prefer, a “basic open frame” cart (PSC style), a “deluxe custom open frame” cart (Chinda), a “horizontal” cart (Magliner), or a “case-based” cart, you have to admire the distinguished choices. Jeff Wexler and I discussed and observed that it seems like cased-based sound carts (in some form or another) are becoming more common in our niche craft in recent years:

“I think the case-based carts pretty much have taken over particularly because people have gone to larger mixers like the Yamaha, and...
more rack-mountable gear. When I was working on Strange Days, I had a lot of time on my hands because we didn’t shoot a lot and we also did 62 nights on stage. Kathryn Bigelow liked working nights and once we got into it, it basically became a night shoot for the whole movie. And I decided, ‘I’m going to build a new sound cart.’ While I was working there, we had plenty of room. I decided to build what I later called a ‘case-based’ cart. I really don’t know [for certain] who built the first one. It is conceivable that it was Art Rochester, using his Thermodyne case. They built equipment cases primarily for the military. They were all fiberglass and very lightweight, but very strong. I’ll also add that with the carts prior to the ‘case-based’ carts, even the upright ones (the Michael Evje–style carts), none of them adhered necessarily to a rack mount width—because none of the equipment we used was rack mount. At that time, there wasn’t anything that any of us used that was. Probably the first rack-mountable devices that we ever used were Furmann power conditioners or things that were designed for rack installations. But in terms of recording equipment or wireless … none of it was rack-mountable.”

As our conversation continued, we talked of Cooper mixers, Nagra, Fostex, and HHB recording decks, Lectrosonics wireless Quadboxes. All with a diminutive width compared to the standard 19” rack width. But what pieces of equipment were driving this move to cased-based cart designs? Probably a little bit before the Fostex DV824 was released, a few guys decided to put a Tascam DA-88 or DA-98 in their carts. Also around that same time, Lectrosonics (pre-Venue) built their multi-couplers that could accommodate four receivers in a single rack space. After that came the popularity of the Lectrosonics Venue, Fostex DV824s, and rack-mountable video monitors. So then why not start including more rack-mountable gear that you otherwise wouldn’t have thought of like, audio/video patch-bays and rack drawers etc.? “Taking over” may be an overstatement on our part, but the more rack-mountable equipment we use, the more it makes sense to have somewhat of a case-based cart—whether it’s an open or closed-frame design. This is driven by our craft’s before-mentioned survivalist need to repurpose gear not intended for us.

**The Future of the Sound Cart Enthusiast**

This is where the evolution has brought us. For 20 different sound mixers, you will have twenty very different sound carts. The priorities have always centered...
on serving the needs of our clientele within a reason-
able fashion. The quest for the “perfect sound cart” is
a tail chaser though I think it is possible to get close to
to perfect. Just like in the history and evolution of Silicon
Valley, creative people steal from other creative people,
retool to those stolen ideas, and then the cycle con-
tinues. Customization is always a factor in this craft and
I think this is why people in our field are so fascinated
by sound carts. Even if you buy a stock cart or frame,
they always get the user’s personal touch. It would be
as if everyone who buys a car paints it or customizes
it entirely. Instead, we see thousands of the same cars
rolling around and, no matter how nice and or expensive
they are, most seem boring due to the lack of aggressive
variety. Sound carts only have aggressive distinctions. If
you are building or about to start a build, good ways to
get ideas for your sound cart include looking through
Middle Atlantic catalogs, Backstage catalogs, Studio Carts cata-
logs, Inovativ catalogs, or websites like JWSound.com,
Gallery of Sound Carts, ProductionRecording.com, etc.
But sometimes you have to see things live. A good ‘ol
set visit or stage hopping may suffice. You could also
walk around places like Pacific Radio, Filmtools, Studio
Depot, or even Home Depot. Even if you are obviously
not seeing any built sound carts displayed in places like
this, it allows you to see certain accessories for your
sound cart that may dictate what direction to build in.
Or, sometimes you may design the entire cart based
upon a must-have accessory or accessories like moni-
tor arms, sliding shelves, patch–bays, rack accessories,
power components, and Gripology.

I’m excited to see more sound carts at the 3rd CAS
Parade of Sound Carts in 2015! Even if your cart is
a work in progress, bring it! Cheers and happy napkin
drawing, CAD drawing, Google SketchUp drawing, and
subsequent sound cart building!

Acknowledgments
Jeff Wexler, CAS • Historical consultation and photographs
Glen Trew, CAS • Electricity consultation
Bob Marts, CAS • Photographs
Mark Ulano, CAS • Photographs
Crew Chamberlain, CAS • Photographs
Richard Lightstone, CAS • Photographs
Art Rochester, CAS • Historical consultation and photographs
Anthony Enns • Photographs
Matthew Freed • Photographs

• The Duopack gives you a compact, dual
channel, self-powered receiver that will run
over 16 hours on a charge.
• The Quadpack gives you power distribution
and four channels with XLR and TA3M outputs.
• The Venue and Octopack give you 6 and 8
channels, including RF multicouplers.

Let us know if you have ideas regarding other
ways you would like to integrate power, audio
and RF on your cart or in your bag.
Since its inception, the Cinema Audio Society has had the goal of advancing the use of sound in motion pictures and, later, television. Our bylaws include the “Declaration of Principles” that spell out why our organization exists. Declaration No. 1 states: “To educate and inform the general public and the Motion Picture & Television industry that effective cinematic sound is achieved by a creative, artistic, and technical blending of diverse sound elements” and Declaration No. 3 states: “To advance the specialized field of cinematic sound recording by exchange of ideas, methods, and information.” It is to this end that the Board of Directors, during the term of Ed Somers in 1995, began publishing the CAS Journal. Richard Lightstone, Fred Ginsberg, Melissa Hofmann and, then-office manager Laura Long, assisted Mr. Somers in the development of the newsletter.

The Early Years

Volunteers from within the ranks of the society have always produced the CAS Journal and now the CAS Quarterly. The membership in 1995 consisted of approximately 250 members. Membership dues and “corporate sponsorships” of $500/year paid for the publication. The corporate sponsors received a free ad in each edition for their contribution. In 1995, the software for independent publishing was in its infancy and PageMaker was the first software used to produce the newsletter. The early editions of the CAS Journal were about 12 pages and MGF Graphics, a local Burbank printing company, printed the Journal from the PageMaker files assembled by the editors. CAS office manager Laura Long was responsible for mailing the newsletter to the membership. The original editors were Ed Somers and Richard Lightstone. They built a template in PageMaker that would be the format used for the publication from 1995 through 2005. At the end of Somers’ term as president, Melissa Hofmann and Mark Rozett took the reigns until Hofmann was elected president and left the publication in the capable hands of Rozett. In 2002, Lightstone returned to his editorial duties with Rozett and, for a brief time, were joined by David Weishaar. In 2003, Aletha Rodgers joined Lightstone as co-editor, after Rozett’s exit. In 2005, Lightstone’s duties as president of the CAS placed a larger demand on his time, and he hoped to find a worthy replacement. Never afraid of a challenge and any opportu-
and Now

The CAS Quarterly begins publishing in 2006.

by Peter Damski, CAS

nity to learn something new, I took on the editorial duties with Rodgers. During this team’s tenure, several current features were conceived and implemented, including “The Lighter Side” and “Been There Done That” sections still found in the current magazine. Rodgers had a background in publishing through her father and brought a new level of professionalism to the publication. I learned a great deal from her.

Changes Coming

During the October 2005 Board meeting at the Dub Stage, an old friend of Richard Lightstone and our current publicist, Dorothea Sargent, introduced the Board to Dan Dodd. Dodd was working with a publishing family, Jody and Jeff Ingle, as their director of sales. During the meeting, Dodd made an offer to the Board to take over the ad sales and, with his team at Ingle Publishing, all of the layout, design, printing, and mailing of the new CAS Quarterly. The first edition reflecting this collaboration was sent to the members in winter 2006. Interestingly, the page count for the last homespun edition and the first professionally produced magazine were the same, 32 pages. Also in 2006, David Bondelevitch joined Rodgers and I for several editions. During this collaboration, a friend of Rodgers, G. John Garrett, began his “Technically Speaking” column. Rodgers, and her husband Paul Vik Marshall, adopted a child in 2007 and Rodgers left the work to Bondelevitch and I so that she could devote herself to motherhood. In late 2007, due to work demands, Bondelevitch could no longer dedicate the time necessary to edit the magazine and Matt Foglia joined me as co-editor. This collaboration continued to try and bring new content to the magazine. Foglia introduced the “Food for Thought” column at this time. We were also very interested in making the magazine more inclusive of our international membership and introduced the “European Roundup” column in 2008. Sadly, our contributor from across the pond, Carrie Giunta, left the business soon afterward and the column ended (we would like to resurrect this at some point! Please let us know if you’re interested!). Foglia and I continued to edit the Quarterly as the membership—and magazine—both continued to grow. In the past few years, Matt and I have invited additional CAS members to contribute to the publication. From that invitation, Karol Urban began as a regular contributor to the magazine. When I was elected as treasurer four years ago, the demands of work and the office were placing too much strain on my time and in 2013, Urban replaced me as co-editor. Before leaving my position, I introduced the “Meet the Mixer” column to the magazine.

Present and Future

Karol Urban and Matt Foglia are your current editors and they continue to make their mark on the publication. Ad sales have spread into our online presence at CinemaAudioSociety.org and, with fresh minds and wonderful intent, Urban and Foglia will continue to bring new ideas and new contributors into the fold.

I look forward to receiving every edition now, as I no longer get to see them in advance of their mailing. The purpose of this publication has never changed and I hope that you, the membership, have been pleased with all of our hard work. This is your magazine and we always love getting input from the members—so keep on sending in those comments!

I would like to thank Ed Somers, Richard Lightstone, and Fred Ginsberg for their help with this article.
Having production mixed *Dallas Buyers Club* with director Jean-Marc Vallee, I was glad to get the call to work on the Fox Searchlight film *Wild*, starring Reese Witherspoon. It’s the true story of Cheryl Strayed, a woman who hiked 1,100 miles of the Pacific Crest Trail by herself. The entire trail runs from Mexico to Canada. Cheryl hiked from Mojave, California, to the northern border of Oregon, ending at the Bridge of the Gods. I was familiar with the trail because, in 1975 when I was 19, I hitchhiked from Chicago to the Bridge of the Gods, and backpacked south for three weeks on the trail.

**Approach & Gear**

We were going to shoot *Wild* in what people refer to now as *Dallas Buyers Club*–style: Minimum crew, available lighting, no marks for actors, no monitors, no dollies, handheld camera, run and gun. Actors are not limited to the script and are free to improvise. When lighting was used, it was as few lights as possible. One scene was lit entirely by an LED panel not much bigger than a deck of cards. Often, we would shoot the first rehearsal.

For this film, Jean-Marc had a few special requests—starting with me mixing without a sound cart—even when we were not on the trail. I carried all the sound recording gear “over the shoulder” for seven weeks. Jean-Marc wanted to be able to direct Reese when she was far away with an earwig. I had Comtek provide me with a special high-powered transmitter with a mute switch for the director’s mic. Comtek also provided a headset mic for Jean-Marc to wear as needed.

This was the first feature that I mixed entirely over the shoulder. I used the Sound Devices 788T to record with the CL-8 as my mixer. I used individual Lectrosonics UCR411A receivers—carrying only what I needed for the scene. On Reese’s receiver, I used one shark fin antenna and an extra long whip antenna from Lectrosonics. The extra long whip antennae are about three feet long. I would use two on each diversity receiver. I would attach the end of the whips to the top of the Phase Right antenna to give them height. I used Sanken lavalieres and Schoeps mics. I wanted to have good range for my Comteks, so I used a BST75 transmitter with a Phase Right antenna. I used the Porta Brace heavy-duty harness to carry the gear on me. I found that after a few weeks, my shoulders were...
sore. I powered everything off a NP-L7S Li-Ion battery and a PSC Power Star Mini power distribution system. I never weighed my rig. I thought it was better not to know how much weight I was carrying. Whatever else we might need, my utility person, Morgan Hobart, would bring in a waterproof crate—with the speaker on a two-wheel Magliner dolly.

Jean-Marc wanted to be able to play music in the ear-wig or through a battery-powered speaker at a moment’s notice. He provided me with a 98-song playlist, which I used an iPad mini to play from. For the speaker, I used an Alesis TransActive speaker, which has more than 50 hours of battery life and a USB port for charging phones—which was handy because we were often without AC power. It worked with Bluetooth, so I could play from my iPad or Jean-Marc could play from his iPhone. Jean-Marc would sometimes use the rhythm of the song to set the pace that Reese hiked. Creatively, Jean-Marc used songs to help visualize the scene and set the mood.

Locations & Situations

During prep for the film, we tech scouted for seven straight days. The locations were almost all in Oregon. We had a few scenes in Washington and one day in Mojave, California. We filmed in the desert, rain forests, raging rivers, snowfields, and mountains. Portland was used to double for Minneapolis—where Cheryl was from. The first day was scheduled for Crater Lake. The federal government shut down, so national parks were not available for filming. The shooting schedule had to change.

For the opening scene of the film, it took two ski lifts, a three-quarter of a mile hike, and a climb over boulders to get to the mountain-top location. The camera crew and my boom man, Glenn Young, had to be tethered to safety cables that were attached by the stunt rigging crew to the mountain. I spent the day mixing, standing on one of the boulders. When we filmed the snow scenes on Mount Hood, we took an Arctic Cat to get to the set. I spent the entire day mixing on snowshoes.

The days were long, starting before sunrise and finishing after sunset. When the sun was setting, we would shoot entire scenes in less than 20 minutes. For the scene where Cheryl meets the farmer on a tractor, Jean-Marc picked up the camera and shot the entire scene himself. He shot a wide shot, overs, and the close-ups without cutting the camera. Sometimes the support crew would be asked to lie flat on the ground for a 360-degree shot at a moment’s notice. We would hike out from the set in the dark.

Another day, we were shooting the “Young Bucks” segment. We started out with huge rain towers supported by a crane. We shot all the rain exteriors and moved inside the ranger’s station. We were losing the light and had to quickly wire all five actors and start shooting without a rehearsal. Glenn Young would boom as many actors as he could and I would get the rest on wires. The set was pretty tight and Glenn would have to adjust to the rapidly changing shots on the fly.

Shots would evolve into much longer shots. A scene with Cheryl walking out of a store and getting into a pickup truck would turn into driving a couple miles down the road and continuing the scene at the other end. The assistant director would call ahead to the art department to hide because we were headed their way—all without cutting the camera.
We never used a process trailer for the driving scenes. The director liked shooting French overs from behind the actors. I would either be in the vehicle or in a follow van. When we were in pickup trucks, I would be safety harnessed in the bed of the truck with the cameramen. If there wasn’t room for me in the vehicle, I would mix wirelessly from the follow van. I would use magnetic antenna extenders for the Lectrosonics SM transmitters that would mount on the roof of the picture car. In the follow van, I would use a rack of 411A receivers with two shark fin antennas mounted on a short stand. Often, we shot the scenes in live traffic, which made the follow van staying close challenging. We only had one police car with us as an escort.

Add in a Little Music Recording

My concert and recording studio experience was useful. We recorded three songs live for the film. One was a small boy singing a cappella in the rain forest on the trail. Part of the film takes place during the time when Jerry Garcia just died. As Cheryl is walking into Ashland, Oregon, an impromptu memorial service is taking place. While she is walking through the gathering, we recorded two musicians playing guitar and singing the Grateful Dead song “Box of Rain,” which plays under the scene. This was done live as we were filming on every take. That evening, she is invited to a music club where we recorded “Ripple.” The plan was to have an hour pre-call to prepare to record for playback. During that hour, we set up the band gear and the mics for the band. We worked out the monitor mix for the two musicians and got earwigs ready for playback. I utilized the club’s soundboard with the help of house soundman, Nalin Silva, for the house and monitor mixes. I also used direct outs on his board channels to feed my recorder. I had a separate stereo recorder rolling on every take to use for instant playback if needed.

Everything changed at call time. Jean-Marc wanted to record the song live while we were filming. We immediately started filming the band and added the two actors into the scene when they were ready. I used six tracks for the band and two for the dialogue. One track was a vocal mic plugged into an amp with 2x12 speakers using a reverb setting. I used a dynamic mic to capture the vocal thru the speakers. We only used earwig playback on one
take. The rest was recorded live—at the same time as I recorded the dialogue. We finished the scene before lunch. All three songs we recorded live were used in the final mix of the film.

**Ambience Recording**

On days off or when traveling between locations, I would often drive down logging roads and then hike into the woods to record wild sounds. I would record ambient sounds with and without rain. I would record rivers, creeks, babbling brooks, and insect sounds. I would stay behind to record wild sounds without the crew being present. This is helpful to the editors so they do not have to use a sound library.

**Footage Count**

On every film, I make it a point to meet the person who makes the dailies. Tim Moxey was taking care of our dailies for FotoKem. He set up in Bend and then had to move his workstation to Portland. He used a Mac-based system running proprietary NextLab software. *Wild* was shot on the ARRI Alexa XT, shooting ARRI RAW to XR Mags. It was a single-camera shoot except for a few two-camera days. We had an average of two hours and 45 minutes of footage per day. The total footage clocked in at 93 hours of material. For viewing dailies, we utilized PIX Systems. They were available by website, iPhone or iPad—with bullet proof security.

**At the Trail’s End**

*Wild* was a wonderful film to work on. It was very physical and exhausting, yet very rewarding. It reminded me of how much I liked backpacking and being out amongst nature. The production was well organized and the location department did an amazing job. One of the things I like most about making films, is you never know where they might take you—or take you back to. •
On September 6, the Cinema Audio Society partnered with MPSE and *Mix* magazine to co-host “Immersive Sound: From Production to Playback” at Sony Picture Studios in Culver City, CA. The event featured a full day of activities including technical workshops, playback demonstrations, and a sneak preview of a Sony title mixed for Atmos release, as well as expert panels covering the technology, distribution, and creative implications of immersive sound. More than 500 professionals attended from as far away as Europe and Asia.

The event opened with Randy Thom, Director of Sound Design at Skywalker Sound. He shared ways that we can use sound to add to the story, and not just as “a decoration at the end.” Thom suggested that “We need to be more bold in the early parts of the process,” just as a cinematographer might offer input that effects how the film may move from script to production. One technique he discussed was “starving the eye”; the idea that we are more acute to the soundscape when picture is black or blurred. Thom played the opening scene of one of his earliest films, *Apocalypse Now*, stating, “The opening teaches us how to listen to the rest of the film.”

The two panels on creative opportunities were divided into one focusing on FX, and the other on music and dialog. Each panel offered a lively discussion on the sonic potential and workflow of this new technology.

Will Files of Skywalker Sound has found that immersive environments are effective when different sounds are present in the front, middle, back, and overhead channels. Files found that static backgrounds were not as effective, bringing up the rain in *Planet of the Apes*, which was present through most of the film, as an example. In the film, he sometimes used as many as six or seven different sounds (such as individual raindrops on leaves) in different objects to create a realistic environment.

Scott Gershin of Formosa Group discussed his approach to objects in Dolby Atmos citing his experience...
on Pacific Rim. He organized objects into static and dynamic, separating objects that moved from ones that did not need to. He said, “The ceiling is only one component to the overheads. I could put different reverbs in different channels to create an immersive effect.”

Mark Stoeckinger, also of Formosa Group, discussed an upcoming film project, The 33, about the Chilean miners who were trapped underground in 2010 for 69 days. He said the film naturally lends itself to the use of overhead speakers. “It’s an interesting prospect to use overheads to experience the film as the miners did.”

Marti Humphrey, CAS of the Dub Stage said that he has the same enthusiasm for immersive sound that he had in 1982, when he did his first 5.1 mix. Humphrey has found that while working in Auro-3D, he can place music and ambiences in the upper speakers, freeing up the lower speakers for dialog. “I’m not fighting as hard to get the sounds I’m looking for,” he said.

Scoring mixer Dennis Sands, CAS who has mixed music scores in Dolby Atmos, spoke about how the style of music can impact where it sits in the sound space. He explained that “Lyrical music can come off the screen comfortably. But, if you have big, powerful, and driving music, it can lose the impact [when placed off the screen].” Sands is still experimenting with extra mics during tracking to use in the height channels, reporting that overhead mics have made orchestras sound smaller, so far.

Finally, Andy Nelson, CAS of 20th Century Fox warns that if you pull the music too far off the screen, it gives the sensation that it is no longer a part of the film. “Just because you can do it, doesn’t mean that you have to,” he advises. “Immersive sound,” he summarizes, “is about storytelling.”

The technical panels included representatives from Warner Bros., Sony, Auro Technologies, DTS, Dolby, Yamaha, and Fairlight. Some of the difficulties discussed with immersive sound installations include the cost and time associated with retrofitting stages. There are indicative complications from adding speakers and amplifiers to an existing room, especially if the stage is active during the upgrade. It was suggested that the experience of adding height speakers was like “adding a dance floor to the ceiling.”
John Kellogg of DTS also brought up the cost to theaters to integrate these new technologies, citing a *Wall Street Journal* article that reported film viewer statistics. He pointed out that, “as we move ahead with immersive audio, we have to be cognizant that exhibitors are looking for a value proposition.”

A common theme that continued to emerge amongst both the technical and creative panels was the need to increase consumer demand for immersive sound. “To mix in an immersive sound environment is always going to sound better,” Andy Nelson said during his panel. “But right now, we’re mixing for 1% or 2%. The key is that we’ve got to get more theaters equipped in the world. We have to get the audience excited.” Projects that are specifically suited to immersive audio mixes will help the cause. Nelson described *Gravity* as “a blessing” to immersive sound. “We want to give a reason for a film to be special—a powerful reason for it to be seen in a theater,” he said.

Another common topic across the panels was the time spent on deliverables versus mixes as a result of delivering multiple formats. Scott Gershin said he still prefers to budget time for a 5.1 or stereo mix instead of doing each downmix in one day. Gershin explains that, “A film may only be in a Dolby Atmos theater for 8–12 weeks. A lot of people will see it in 5.1, and it’ll probably be in digital download for life.” Mixer Ron Bartlett testifies to this adding that he sometimes spends as much time on the deliverables as the mix.

Finally, the event offered attendees the opportunity to hear demos of Dolby Atmos, DTS MDA, and Auro-3D in Sony’s theaters, to sample gear from the conference’s other sponsors, and to glean knowledge from others’ experiences with the new formats. Re-recording mixer Anup Dev, CAS who recently upgraded his studio with Dolby Atmos, traveled all the way from India to attend the event and explained, “I really benefited a lot from the panel discussion with all the top re-recordingists, sound designers, and music recordists—and personal discussions with them.”

The Cinema Audio Society would like to thank all of its partners and co-sponsors for the event. An interesting and informative day was offered to everyone in attendance. •
MISSION-CRITICAL AUDIO PRODUCTION TOOLS

Over the shoulder or on a cart

From snow-capped peaks to tropical jungles, inside packed sports arenas or on a production set, Sound Devices family of portable and rackmount multichannel digital recorders and field mixers offer the performance and reliability necessary to deliver the highest quality audio for the most demanding workflows.

www.sounddevices.com
John Sanacore CAS

is grateful to be the Foley mixer on the very funny Bob’s Burgers, now in Season 5. The show just won an Emmy, so word has definitely gotten out about this great show. Fall has been a busy season. Along with my usual animated shows, I’ve been recording Foley for Poltergeist. The remake is slated to come out in 2015. Earlier in the year, I had fun recording Foley on Birdman, which hit theaters in October, and is directed by the very talented Alejandro González Inárritu.

This season, Jon Ailetcher CAS has been busy with the new ABC comedy Black-ish. We’ve recently been picked up for a full season so fortunately, we’ll be busy till early spring. Chris Sposa is booming and Danny Greenwald is handling utility duties as well as double booming most days.

Devendra Cleary CAS reporting from a small office in Santa Monica where next door all I hear is my neighbor with the small office in Santa Monica where next door all I hear is my neighbor with the

The Sweet Shop and Caviar Content.

Kevin Hill CAS and the team at Studio Unknown are fortunate to have had a very busy summer/fall with some great new projects. Currently in theaters and VOD is Ends, a new horror film from Blair Witch Project director Eduardo Sánchez, released by Lionsgate Films on October 24, 2014. ABC’s The Quest, for which we did sound design, edit, and Foley (mixed at Sonicpool), had a fairly successful run this summer—now we’re hoping for a second season! We mixed the features A Year in Change, starring Bryan Greenberg and Jamie Chung, This Isn’t Funny, a Paul Ashton film, starring Mimi Rogers and Anthony LaPaglia, Sally Paccholak, a film about vitamin B12 advocacy, starring Annet Mahendru (The Americans), and the lighthearted female road trip film June, Adrift. We are getting ready to mix Coward, starring Cary Elwes, and Arno, an Armenian film about a young boy’s struggle with life in the US.

After finishing Valley of Violence, Darryl L. Frank CAS went back to Dogs of War, which started airing on A&E on Veterans Day. This is a very moving doc series about veterans getting service dogs from animal shelters. He is now working on the USA network show Dig, with Anne Heche and Jason Isaacs, which will take us to the end of 2014.

This fall, Matt Foglia CAS was awarded tenure and promoted to full professor at Middle Tennessee State University (30 min outside of Nashville), where he teaches graduate and undergraduate courses focusing on audio post and broadcast.

David K. Grant CAS was in the Arctic recording in -50 degrees weather and plans to write an article about the process, upon arriving back in Toronto. He worked on Total Frat Movie, which had a large cast with lots of wireless. Then, he headed up to Sudbury to work with Ethan Hawke on Born to Be Blue, the Chet Baker jazz legend story.

Bob Bronow CAS finished up another great adventure on Season 10 of Deadliest Catch. He has spent the last few months mixing Storage Wars (a very different show). Now, he goes back to the woods for Ax Men Season 8. He also just finished up the theatrical mix of The Wrecking Crew. I hope it’s out soon!

David E. Fluhr CAS and Gabriel Guy CAS recently completed mixing Walt Disney Animation Studio’s Big Hero 6 on Stage A of Disney Digital Studio Services in Burbank. Mix was pre-dubbed and finaled in the Dolby Atmos format. FX pre-dubs were begun at Skywalker Sound.

Steve Bowerman CAS, Tom Thoms, and Jeffrey Hefner are well into Season 12 of NCIS and it’s time to acknowledge two dear friends. The first is boom operator Tom Thoms, who will retire at the end of this season. We have worked together since 1997 and have been close friends for more than 30 years. Tom is a boom operator of the highest order and a salt-of-the-earth brother. I will dearly miss him as will the cast and crew of NCIS. The second is David Macmillan CAS, who will receive the CAS Career Achievement Award in 2015. No one is more deserving. David is a lifelong pal, a great mentor to many and a joy to work with and be around. He brought good cheer to the set every day and made the difficulties of the job insignificant. You are very special guys and we love you both.

Mixer Michael Rayle CAS, boom operator Dan Giannattasio, and utility Jenny Elsinger are currently working on Season 2 of Sleepy Hollow. We continue to find interesting ways to record a monster without a head.

Petr Forejt CAS is recording & mixing the second season of the BBC series The Musketeers on locations in the Czech republic. Tomas Cervenka Jr. is on boom and Ondrej Jirska is on radio mics and utility.

Jim Fitzpatrick CAS has been busy at Formosa Group Stage “E” mixing Family Guy for FOX Television and American Dad for TBS. Family Guy Season 12 starts with our one-hour season premiere crossover show Simpsons Guy (Worst Chicken Fight Ever). American Dad is in its ninth season.
Gary D. Rogers CAS and Dan Hiland
CAS finished mixing Damon Lindelof’s The Leftovers for HBO. They are currently mixing the fifth season of The Walking Dead, the fourth season of Hart of Dixie, and the third season of Arrow on Dub Stage 1 at Warner Bros. Burbank Post Production facility.

Kenn Fuller CAS and crew Tom Payne and Ron Hairston Jr. on booms are happily up to their eyeballs with Season 2 of Marvel’s Agents of S.H.I.E.L.D. at Culver Studios. It is a great show and a great job. It’s so refreshing to work with producers, actors, and crew who appreciate good sound and have created an environment where it’s possible.

George Flores CAS, MPSE, sound editor, designer, re-recording mixer in Toronto, Canada, recently completed comprehensive sound post production for the Canadian “indie” feature films: The Storehouse, Late Night Double Feature, Ejecta, My Ex-Ex, Crossroads, and The Drownsman. In addition, George Flores, under the direction of inMotion, created and produced the sound design for the access ramps of the new Canadian Museum for Human Rights in Winnipeg and mixed several theatrical documentaries for the same venue. On the broadcast side of things, Flores sound-posted five hours of the wildlife television series Nomads of the Serengeti, and corporate productions for Phanta Media, inMotion, and Story Masters. Other sound post included the short film Zero Recognition, which premiered at the Toronto International Film Festival, and the documentary Number’s Guy.

Felipe “Flip” Borrero CAS finished the feature film The Duff, starring Mae Whitman in May-June 2014 and then moved on to the new Fox TV series Red Band Society, which is expected to wrap episode 13 by December 2014. The boom operator for The Duff is Mike Schmitt and the boom
operator for Red Band Society is Marcus Ricaud. Flip has also recently been gifted with a new great grandchild, Evalise!

After a delightfully quiet summer, it’s back to a full season for Gavin Fernandes CAS … the fall will be spent doing Jonathan Strange & Mr. Norrell for the BBC, intermixed with the feature doc Chameleon and a Guy Maddin film. There is also a series for Sony/SyFy and CBS signed through the winter, and more features for Cannes in the new year. Good health and great tracks to all!

John Rodda CAS started on 24: Live Another Day this season. If you’ve ever watched the show (and I hadn’t), you know that 24 is a roller coaster ride. Twelve episodes over 22 weeks and hardly a moment to catch your breath. It was multi-camera, wide and tight and the only camera rehearsals were with stand-ins. Dialogue was delivered at anything from the tiniest whisper to the loudest shout—often in the same shot. We started on a cold, wet Sunday in January and didn’t stop until we’d maimed, tortured, and killed a whole army of baddies at the end of June. Liam Ryan, AMPS (1st assistant sound), Loveday Harding, AMPS (1st assistant sound), and Kyle Pickford (2nd assistant sound) were completely indispensable. I can’t thank them enough for their patience and tenacity in helping us achieve what we did. Minimal ADR was required, mostly for extra lines added at the picture editing stage. It is a tribute to the sound teams, both in production and post. Jack Bauer never got anywhere by just giving up and neither did we!

Robert Sharman CAS finished the ABC Family pilot Stitchers on June 13 at midnight, then packed his gear on a truck at 7 a.m., caught a flight later that afternoon, and moved to England! I want to thank my friends, Kenny Mantlo (who I am lucky to have and brought on in the hopes he’ll be mixing the series in my absence) and Rob Cunningham, for being on my team. I also want to thank Glen Marullo for giving me 2nd unit in the UK on the revival of a ’70s TV show Poldark. I hope to have more good news to report from “across the pond” in the next issue.

Philip Perkins CAS mixed the music for a new doc about Bob Mould, Beauty and Ruin, for Boing Boing, Marcus Shelby, and for KQEDArts & PBS. He is currently mixing the feature doc Theory of Obscurity: A Film About the Residents and PBS’s Worse Than Poop, an animated film for kids about global warming and air pollution. Monkwork, a CD of Thelonius Monk tunes he recorded and mixed for The Lost Trio, has just come out on Evander Music. He also just released a new CD of his own sound works, Mister Anyway, on Fun Music.
Michael Keller CAS and Mike Prestwood Smith have just finished Rob Marshall’s *Into the Woods* at Warner Bros. New York.

Frank Morrone CAS and Scott Sheppard are mixing *The Strain* for Guillermo del Torro and *The Book of Negroes* at Technicolor. Frank is also mixing the pilot *Point of Honor* for Carlton Cuse with Craig Hunter.

David Barr-Yaffe CAS and Aaron Grice are on location in Atlanta enjoying some southern comfort on Season 2 of ABC’s *Resurrection*. Finishing in January, they will stay in A-Town, Y’allywood and continue on to Season 3 of *Devious Maids* for Lifetime.

Zach Wrobel, Alex Names, and Robert J. Anderson Jr. CAS are having a ball on *Jane the Virgin* for the CW. It is a great crew and a fantastic cast. Our fingers are crossed for all their success.

At Smart Post Sound in Burbank, Sherry Klein CAS and Lisle Engle CAS are mixing *Constantine* for NBC. At Larson Studios in Hollywood, they are also mixing *Complications* for USA. Additionally, Sherry and Mark Server just completed mixes for the final season of *White Collar*.

Karol Urban CAS is back to work mixing *Grey’s Anatomy* Season 11. She also recently completed a Veterans Day special for PBS called *Navy SEALs: Their Untold Story*, narrated by Gary Sinise. Additionally, Karol and Steve Urban are currently mixing Discovery’s *Edge of Alaska*.

Gary Bourgeois CAS finished *Step Up All In* for Trish Sie. He also just finished *Hot Tub Time Machine 2* and is back in Vancouver (October) mixing *Russell Mania* at Western Post. Enjoying the rain at Paramount Technicolor in November. Happy Thanksgiving to all.

Paul Vik Marshall CAS sends a special thanks to Richard Mercado for having him mix the first two episodes of *The Goldbergs* for ABC this season. Boom ops Kevin McClellan and Howard Erickson did a terrific job and made it easy. An accident on set last year has led to multiple surgeries and a forced retirement. Many thanks to my good friends, mixer James Berek CAS, boom ops Paul Leo Romo, Hansel Gonzales, Jeff Blehr, and Sheraton Toyota, who have helped me above and beyond during these trying times. Mixing for 20-plus years has been the highlight of my life and hopefully, I'll be back behind the mixing board soon.

Jay Rose CAS has released a totally revised version of his *Producing Great Sound for Film and Video* (Focal Press, 550 pages plus online files). Sound designer Randy Thom CAS, production mixer G. John Garrett CAS and re-recording mixer Marti Humphrey CAS contributed content and inspiration. Educator/engineer Mike Michaels CAS reviewed both the initial proposal and the accompanying *Teacher’s Guide*. Full details at www.GreatSound.info

Brendan Beebe CAS, along with Dennis Fuller on boom and Ted Hamer on boom/utility, are finishing this year on *Stalker* for CBS. We are all happy to be shooting in our hometown of Los Angeles! It’s been a great year and next year is looking up for all of us!

Dave Schaaf CAS worked on a feature in Colorado titled *Christmastime*, with director Michael Landon Jr. Boom operators were Jesse Yadon and Jessie Marek.
Supervising sound editor Marcel Pothier and Gavin Fernandes, CAS at a recent Habs game with Gavin’s soon-to-be-disowned son, Nicholas.

Walter New, CAS at Audio Head Stage C final mixing the feature Little Boy, distributed by Open Road Films. From left: Walter, composer Steph Altman, director Alejandro Monteverde, and producer Leo Severino.

Bob Bronow, CAS brought the kids to the Creative Arts Emmys for the first time. It was so much fun to see it through their eyes! How often do your kids get to meet Morgan Freeman and refer to him as Morgan F&@kin’ Freeman? Luckily, he’s got a great sense of humor!

David Barr-Yaffe, CAS and Aaron Grice enjoying lunchtime with their awesome local utility, Jeff “Skippy” Hopper, while working on ABC’s Resurrection. Glad (and lucky) to have you aboard, Jeff.

The “PediCart” moves Daniel S. McCoy, CAS and Peter Ølsted around Savannah, Georgia, for SpikeTV’s Casino’s Law.

John Rodda, CAS shooting Marco Polo in July and August. We shot at Pinewood Studios Malaysia. The epic adventures of a young Italian merchant and explorer who found his way to the imperial court of no less than Kublai Khan. Shot in Venice, Kazakhstan, and Malaysia, an event series produced by Netflix and The Weinstein Company.

David Grant, CAS finds working on location sound in the Arctic at -50 degrees gets you thinking … fingers, toes, nose.

Jon Rose prepares to record some very wild SFX performed by his sister Abby. He’s consulting on a new book on film sound, written by his grandpa, Jay Rose, CAS.

Greetings from the sound crew on Castle as we make Christmas on Paramount’s NY Street. The band includes Erik Altstadt (utility), Scott Harber, CAS (mixer), Bill Roe, ASC (2015 ASC Career Achievement Award winner and best director/DP to work with ever!), and John Agaloff Jr. (boom op). We do it well and have a great time doing it. We should all be so lucky!

The sound of James Franco’s The Sound and the Fury. Pictured here at Golden Oak Ranch are boom Tim Song Jones, mixer Dan Monahan, CAS, and utility Jay Golden. We thought we were going to look so much younger standing in front of this car!

The sound of James Franco’s The Sound and the Fury. Pictured here at Golden Oak Ranch are boom Tim Song Jones, mixer Dan Monahan, CAS, and utility Jay Golden. We thought we were going to look so much younger standing in front of this car!

Bob Bronow, CAS brought the kids to the Creative Arts Emmys for the first time. It was so much fun to see it through their eyes! How often do your kids get to meet Morgan Freeman and refer to him as Morgan F&@kin’ Freeman? Luckily, he’s got a great sense of humor!

Walter New, CAS at Audio Head Stage C final mixing the feature Little Boy, distributed by Open Road Films. From left: Walter, composer Steph Altman, director Alejandro Monteverde, and producer Leo Severino.
FOR YOUR CONSIDERATION
BEST SOUND MIXING
THOMAS VARGA PRODUCTION SOUND MIXER
JON TAYLOR + FRANK A. MONTANO RE-RECORDING MIXERS

“THE SOUND AND EDITING TEAMS DO NOT MISS A BEAT.
THE MUSIC ALONE MERITS ITS OWN REVIEW. THE FILM IS FRAMED
BY ANTONIO SANCHEZ’S EVOCATIVE DRUM SCORE AND LIFTED
BY SYMPHONIC SWELLS THAT MILK EVERY MELODRAMATIC
QUOTE-UNQUOTE MOVIE MOMENT WITH A SLY SARCASM
THAT IS AS LOVING AS IT IS BITING.”
BETSY SHARKEY, LOS ANGELES TIMES

BIRD MAN
( THE UNEXPECTED VIRTUE OF IGNORANCE )
Congratulations!
To the Cinema Audio Society for your 50th Anniversary.