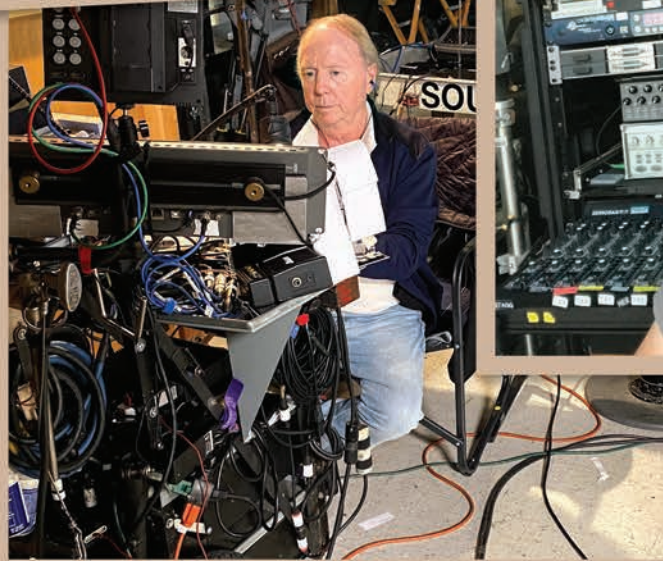
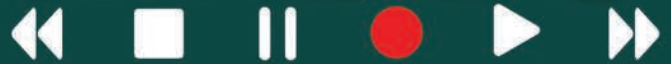


PRODUCTION SOUND & VIDEO

WINTER 2021
VOLUME 13 ISSUE 1

THE OFFICIAL PUBLICATION OF IATSE LOCAL 695



F O R Y O U R C O N S I D E R A T I O N

BEST SOUND

Randy Thom, Bjørn Schroeder, Dan Hiland, Todd Beckett, Danny Hambrook

BEST CINEMATOGRAPHY

Martin Ruhe, ASC



“ONE OF THE
VERY BEST FILMS
OF 2020.

AN EXQUISITELY CRAFTED
JOURNEY.”

CHICAGO SUN-TIMES

“EXCEPTIONAL.

A BEAUTIFULLY
CRAFTED FILM.

THE SOUND IS SUPERB.”

DEADLINE

“TECHNICALLY
AND VISUALLY

WONDROUS.”

PARADE

THE MIDNIGHT SKY



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14



20



24

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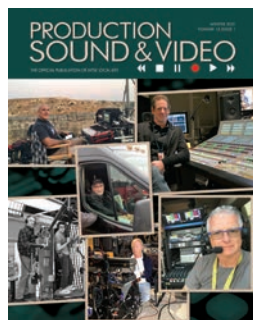
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Cover

Clockwise from top left: Simon Hayes, *No Time to Die*; Bruce Arledge Jr., *Dancing with the Stars*; John Pritchett, *News of the World*; Peter J. Devlin, *Wonder Woman 1984*; Darin Knight, *Superstore*; Steve & Shannon Cain, *Superstore*



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FROM THE PRESIDENT



A few years ago, I was presented with a full-time job opportunity from a major studio and found myself at a crossroads. As I weighed this potentially life-changing decision, I discussed the possibility of leaving my freelance life with two dear friends of mine, a married couple, over dinner. The husband built his career as one of our Brothers in Local 80, and his wife comes from a union family from the Midwest. I could tell that she was uneasy about my potential career move.

As dinner was wrapping up, my friend excused herself from the table, only to return and request I follow her. We walked into the ladies room, she opened the stall door, and pointed to the drainage grate on the floor.

"Did you notice the grates on the floor in this place?"

I admit, I didn't.

"Not too long ago, these grates said the word Chicago on them, Chicago. Now they say nothing."

I also admit, I wasn't sure where she was going with this story.

"I'm asking you to stay freelance. I'm asking you to stay and uphold the values of craftsmanship we grew up with. Being union is where we grew up. It's a statement about the standard of work we do. It's important we keep the IATSE stamp at the end of the credits going strong."

My good friend was right. The Midwest work ethic that she and I grew up with is deeply rooted in the unions that our families served within. They took pride in the union stamp that graced their products—a pride that I now feel each time I see the IATSE logo when the credits roll on our screens.

I am forever thankful to her for reminding me how a member's commitment to the collective and participation in its endeavors can strengthen or weaken the presence of a union.

That pivotal moment in my career is why I am here today as the next President of Local 695, Hollywood's Technical Local.

I grew up in the western suburbs of Chicago in a family of artists and tradesmen, both union and nonunion. I grew up in a family of working-class small business, where people worked to achieve the dream of buying a house and providing a better future for their children than the one they had for themselves.

My Uncle Andy is a retired projectionist. He provided

me with backdoor entry into movie theaters when I was a teenager. I saw everything and learned to appreciate the craft of filmmaking as a whole. Uncle Andy is an influence who noticed my enchantment with the silver screen and helped to inscribe the work ethic and importance of the Chicago IATSE Locals into the fabric of my being. My Chicago roots will never disconnect from who I am as a worker and a leader.

At such a young age, the ideas of healthcare and pension were still foreign to me but today I view them as the cornerstone of the union movement. Healthcare, mental wellness, and safe working conditions are of the utmost importance as we have been deemed essential workers amidst the COVID-19 outbreak. This pandemic has spotlighted the weaknesses of our culture's mental health awareness. I encourage you to continue to reach out to family, friends, and members who are struggling during this time. And while new technologies emerge as our production workflows lead us to safer, cleaner, and more socially distanced procedures, we will continue to educate and train our members to continue our strong tradition of being the foremost technical union in Hollywood.

If we don't maintain a strong collective, the future of television and film will become just like the metal grates in those bathrooms. But that will not happen. I have personally watched our membership rise to the staggering obstacles of the last year, both on set and at home, I believe that our best days still lie ahead.

I am extremely proud of our members and of the IATSE membership at large. The manner in which our 695 artists and technicians are carrying themselves in the midst of a growing, risk-filled pandemic is admirable. I am in awe of the lengths our members are going to in order to keep themselves, their co-workers, and the collective at large safe and healthy so that work can continue. Members have altered their personal lives to stay safe from the virus, knowing that one infection on set can be to the detriment of an entire production. Together, we take this responsibility to heart.

This is family. This is what a union stands for. This is IATSE. As your next elected President, I promise that I will always keep the health and wellness of our members as my priority. I encourage your participation and involvement on all levels within the Local. Please feel free to reach out to me with comments, questions, and concerns at anytime. On behalf of the Board of Directors and the office staff at 695, we are here for you.

Stay Safe. Stand Proud. Be Courageous.

A handwritten signature in dark ink, appearing to read "J. Arnold".

Jillian Arnold

FOR YOUR CONSIDERATION

Best Picture

Best Sound

REN KLYCE, JEREMY MOLOD, DAVID PARKER, NATHAN NANCE, DREW KUNIN

Best Cinematography

ERIK MESSERSCHMIDT, ASC

“★★★★★

THE UTTERLY IMPECCABLE SOUND DESIGN FROM REN KLYCE
IS PERHAPS THE MOST IMMERSIVE TECHNICAL DEVICE UTILIZED
TO RECREATE THE CINEMATIC STYLE OF ‘CITIZEN KANE.’”

MIRROR



“IT IS THE MOST GORGEOUS PIECE OF CINEMA
YOU’LL SEE ANYWHERE. BRILLIANTLY SHOT
BY ERIK MESSERSCHMIDT.”

ABC NEWS

Mank

DIRECTED BY DAVID FINCHER

N

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FROM THE EDITORS



Happy New Year and welcome to this edition of *Production Sound & Video*. The extended end of the year production hiatus is hopefully over, shows are back up, and you are healthy and busy.

A trio of experienced Sound Mixers contribute to this issue; John Pritchett, on *News of the World*, Peter Devlin describes *Wonder Woman 1984*, and Simon Hayes on *No Time to Die*.

Co-editor James Delhauer reports on the new Apple M1 Processor, Bruce Arledge Jr. is interviewed about his popular invention of Boom-Trac and his work on *Dancing with the Stars*.

Boom Operators Steve & Shannon Cain tell us about their successful use of Fisher booms on *Superstore*.

All good reading and information, enjoy.

Richard Lightstone & James Delhauer

FOR YOUR CONSIDERATION
BEST SOUND MIXING

SOUND RECORDIST

CLAUDE LAHAYE

RE-RECORDING MIXERS

JOSH BERGER

ROBERT HEIN

ANDRA DAY

A LEE DANIELS FILM

A hulu ORIGINAL FILM

THE UNITED STATES VS. BILLIE HOLIDAY

FEBRUARY 26 **hulu**



FROM THE BUSINESS REPRESENTATIVE



Let's turn this around, welcome 2021.

I remember the call I received last March 11, informing me that a crew member had come down with COVID. Two days later, we closed the Local 695 office, and since that day, we've been running most of the Local's business remotely. Immediately, we circled the wagons and began reaching out to our members to see where we could help. We began the discussion with the management Trustees of the Motion Picture Plan on ways we could keep members and their families insured during this health crisis. Thankfully, the Plans have been managed well enough with many months of reserves, to carry us through the industry shutdown. These reserves were used to allow MPI participants who had coverage before the shutdown, continued family coverage.

We welcome a new year with a new President, Joe Biden, a longtime supporter of labor who knows that a strong economy comes from good union jobs. President Trump catered to corporations and killed most of the environmental and labor protections that took years to build. It is now time to restore our unions, focusing on working women and men to bring back the middle class. This is achieved by inclusion of all workers, no matter the color of their skin or how they identify.

With struggle comes opportunity. Coming out of the industry shutdown, we've experienced a need for additional Video Assist Operators on production. Many shows now want to provide Video Assist remote viewing to those people who would normally be on the set but due to COVID protocols, chose to work from afar. We have also seen an increase in the use of video playback on shows with large video walls being used as scenic backdrops. This is the modern version of the process shot used for decades on many productions. All this work has grown during the past year, and our

Video Engineers are leading the way in the development of new workflows to meet the needs of today's productions.

Looking ahead, we now have the vaccines to stem the spread of COVID. Productions will continue to ramp up to pre-COVID levels and more. The production environments we work in will gradually return to normalcy and we will once again be able to travel without fear of getting sick. I am in awe of how this industry took care of its brothers and sisters in the early dark days of the virus. We now see the light at the end of the dark tunnel, with hope in a new President who cares about us, the workers, the backbone of this country. It may be a slower transition than we hope for, but we will turn this around.

In Solidarity,

Scott Bernard
Business Representative

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VERSATILE



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JOHN PRITCHETT

RE-RECORDING MIXERS
MIKE PRESTWOOD SMITH
WILLIAM MILLER



BEST SOUND EDITING

SUPERVISING SOUND EDITOR/DESIGNER
OLIVER TARNEY

SOUND DESIGNER
MICHAEL FENTUM



NEWS OF THE WORLD

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OUR CONTRIBUTORS



JAMES DELHAUER

James Delhauer was born in Southern California and never made it very far from home. Since 2014, he has worked as a television engineer specializing in Pronology's mRes platform. He joined Local 695 because he desperately needed friends. James is Co-editor of *Production Sound & Video*



PETER J. DEVLIN CAS

Peter began his career in sound as an audio assistant working in radio and television for the BBC in Belfast. In 1987, he moved to the United States. Since 1995, he has been a member of Local 695. He serves on the Board of the Cinema Audio Society, as well as the Executive Committee of the Sound Branch of the Academy.



SIMON HAYES AMPS CAS

Simon Hayes AMPS CAS is a second-generation Production Sound Mixer who began his career in commercials and mixed his first feature at 27 years old. He has since mixed more than 55 feature films and was honored with an Academy Award for his contribution on *Les Misérables*. Simon is currently serving on AMPAS's Sound Branch Executive Committee.



RICHARD LIGHTSTONE CAS AMPS

Richard began his career in Montreal, and continues to mix in Los Angeles. He is the Co-editor of *Production Sound & Video*, served on the Executive Board of Local 695, and President of the Cinema Audio Society for two terms.



JOHN PRITCHETT CAS

John Pritchett CAS was born in Santa Monica, grew up in Texas, and resides in Austin. John has been in IA 695 for 32 years, and in the sound business for 51 years. He has two Oscar nominations: *Memoirs of a Geisha* and *Road to Perdition*. He also has a BAFTA nomination for *There Will Be Blood*.

Photos courtesy of the respective contributors.

PRODUCTION SOUND & VIDEO

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

Certified & Chartered September 15, 1930
A California Nonprofit Labor Corporation
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and L.A. Central Labor Council
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VICE PRESIDENT

Devendra D. Cleary

RECORDING SECRETARY/ EDUCATION & COMMUNICATIONS DIRECTOR

Laurence B. Abrams

TREASURER

Phillip Palmer CAS

BUSINESS REPRESENTATIVE

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SENIOR ADMINISTRATIVE ASSISTANT

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"THE BEST FILM OF THE YEAR"

The New York Times

"A STAGGERING ACT OF COMEDIC REVOLT.
ROWDY AND RELEVANT.
OUTRAGEOUS AND UNPREDICTABLE"

VARIETY

"THE THRILL IS IN HOW SMOOTHLY,
HOW IMPROBABLY, COHEN AND HIS COLLABORATORS
HAVE ENGINEERED IT ALL"

RollingStone

OVER 20
TOP FILM OF THE YEAR
LISTS

INCLUDING

The New York Times *CINEMABLEND* *IndieWire*
VARIETY *RogerEbert.com* *RollingStone* *GLAMOUR* *Parade*

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MOVIEFILM

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BEST SOUND

PRODUCTION SOUND MIXERS **SCOTT HARBER • JIM LAKIN**

SUPERVISING SOUND EDITORS

ANDREW DeCRISTOFARO, MPSE • DARREN 'SUNNY' WARKENTIN, MPSE

RE-RECORDING MIXER **LORA HIRSCHBERG**



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STUDIOS

LOCAL 695 ELECTION RESULTS



Clockwise from above: President Jillian H. Arnold; Vice President Devendra D. Cleary; Recording Secretary Laurence B. Abrams; Trustee Jennifer Winslow; Board member Veronica Kahn; Sergeant-At-Arms Chris Howland; Board member Juan Cisneros; Business Representative Scott Bernard

Trustee – Shawn Holden

Trustee – Jay Patterson

Trustee – Jennifer C. Winslow

The Local 695 Triennial Election of Officers was held in December of 2020 and on December 17th, Miller Kaplan delivered the certified results to the sitting Executive Board. The following individuals were elected to serve as Local 695 Officers by a simple plurality vote.

President – Jillian H. Arnold

Vice President – Devendra D. Cleary

Recording Secretary – Laurence B. Abrams

Treasurer – Phillip W. Palmer

Business Representative – Scott Bernard

Sergeant-At-Arms – Chris V. Howland

Executive Board Member – Joseph Aredas Jr.

Executive Board Member – Juan Cisneros

Executive Board Member – Sara Glaser

Executive Board Member – Veronica P. Kahn

Executive Board Member – Edward L. Moskowitz

Executive Board Member – Steve R. Nelson

Delegates to the International Convention:

Laurence B. Abrams

Heidi Nakamura

Mark Ulano

Jennifer C. Winslow

695 1st Quarter Membership Meeting

On January 16, Local 695 held the first General Membership Meeting of the year, which was conducted via Zoom's video conferencing platform and has become the standard since the outbreak of COVID-19. IATSE Vice-President Michael Miller was present to swear in the new Board of Directors. Jillian Arnold succeeded Mark Ulano as the Local's president after a historic

15-year term. We wish President Arnold a prodigious term of office as the first woman and the first broadcast engineer to hold the position and we thank President Ulano for his many years of service.

General topics of discussion included industry recovery in the wake of the COVID-19 pandemic, the continued use of remote meeting tools such as Zoom after the pandemic's conclusion, and the dissemination of official union

business on social media platforms, such as Facebook. On this last point, the Local is committed to using social media only for general informational purposes and not to conduct business dealings. Any members wishing to address or conduct business with or seek assistance from the Local are encouraged to reach out directly to the office staff at (818) 985-9204 or info@local695.com.

Lastly, Local 695 is proud of its

members in action. Any member wishing to be featured on the Local 695 Instagram account are encouraged to send on-set photos to Vice President Devendra Cleary at photos@local695.com.

CSATF Required Training: COVID-19 Prevention


Members are at risk of being turned down for work because they have not completed the 35-minute online COVID-19 Prevention Class. This course is required for members working under the IATSE West Coast Agreements (those members listed on the Contract Services Experience Roster). To register for C19 online, go to www.csatf.org, select Portal, Sign-In, Log In, and select the COVID-19 Prevention Class to enroll. If you have any questions, please email training@csatf.org or call (818) 565-0550 ext. 1200.



COVID-19 News

The 695 website has been updated to include the most up-to-date COVID-19 information, including information on upcoming vaccine availability, safety documents, financial aid options, and COVID-compliance training. For more information, please visit www.local695/covid.

Optum Health Services

 In the wake of the deadly Capitol attack that occurred on January 6 of this year, Optum is offering a free emotional support help line to those in need for assistance. This 24-hour line is available free of charge to anyone in need of aid. Members seeking help are encouraged to reach out to (866) 342-6892 and to take advantage of the resources available at www.liveandworkwell.com. Parental resources are also available for those with children who have been impacted by the attacks as well.

Behind the Sound Cart A Book Review

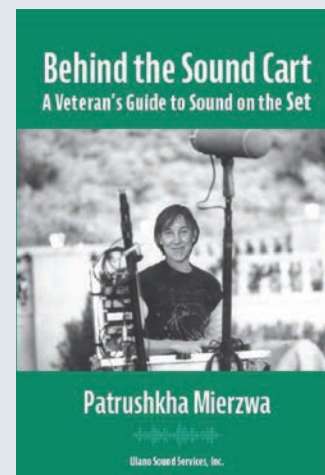
by Richard Lightstone CAS AMPS

Once in a long while, a book comes along that skillfully delves into the work of members of the Sound Department. *Behind the Sound Cart: A Veteran's Guide to Sound on the Set*, written by Patrushkha Mierzwa, is perhaps the best compendium for Utility Sound Technicians. It should be a must read for anyone in the Sound Department, as well as all the other crafts, management, and entry level technicians.

Using her decades of experience, Patrushkha details the job of a Utility Sound Technician, with a meticulous, but entertaining style. Starting with the history of the UST, sprinkled with many personal anecdotes, and tons of information such as; wiring, booming, communication, show prep, and much, much more.

The Utility Sound Technician is the 'oil' that keeps the Sound Mixer and Boom Operator working efficiently, and is also the ambassador for the Sound Department. Everyone reading this book will gain new awareness and much more respect for the incredible work the UST does every day.

Bravo to Patrushkha Mierzwa on tackling this subject in the most entertaining and informative way. The book is available on Amazon.



NEW MEMBERS

Local 695 welcomes
its new members

Franco Montes	Y-4
Darrell Cash	Y-4
Anthony O. Ortiz	Y-7A
Conrad Perry	Y-4
Chad Starewicz	Y-1
Robert K. Rogers	Y-4
Dylan Reinsma	Y-4

IN MEMORIAM

ROGER AVAN

PROJECTIONIST

Nov. 3, 1934 - Jan. 6, 2020

PETER HOCHBERG


PROJECTIONIST

Dec. 29, 1934 - Dec. 28, 1954

WONDER WOMAN 1984

by Peter J. Devlin CAS

On Father's Day, June 17, 2018, my sound cart was set up on Pennsylvania Avenue in D.C., but I had a feeling all was not as it seemed. Attorney General Jeff Sessions had just visited the set with his entourage, our Director Patty Jenkins had just rehearsed the camera moves with our DP, Matthew Jensen, and our huge cast of extras were dressed from another era. Ben Greaves, my Boom Operator, was standing on top of a fire truck, gas-guzzling cars were idling in neutral, and everybody was waiting for our First AD Toby Hefferman to call action. I was on the set of *Wonder Woman 1984*, at a time when social distancing was not part of the vocabulary, and the only masks needed to be worn was when a dust storm hit our production in the aptly named Fuerteventura in the Grand Canaries, later in the year.



Peter Devlin on the National Mall in D.C., pushing his cart back at wrap

Washington, D.C., was our first month of production on *WW84*, and we showed off the wonders of the capital circa 1984. However, one of the more challenging locations was the rooftop restaurant, opposite the White House. Gal Gadot (Diana) and Kristen Wiig (Barbara) settled into their characters, with the Washington Monument behind them, but it was the sound of jack hammers that made a greater impression on me. With both actors wired for sound, Ben's Sanken CS-3 sitting on the edge of frame for Diana, and local Utility Nate Sessions on 2nd Boom over Barbra, it was touch and go as far as getting the dialog above that noise floor. Of course, I had to make a request to the Location Department, "Can someone go over to the White House and see if they would work with us on "Cuts and Rolls"? I have to hand it to our great location crew, they tried but the answer from the WH was "No." With a Sanken CS-5 pointed toward the White House, capturing stereo ambience, I believed we had managed to capture the performance and hopefully a scene that would not need to be recreated in ADR later.

Boom Operator Ben Greaves and I have known each other for many years. He hails from the UK and is another film craftsman who has spent time in the world of big screen



Peter rolling his cart onto the National Mall in D.C.



Chris Pine as Steve Trevor and Gal Gadot as Diana Prince.
Photo by Clay Enos/DC Comics/2020 Warner Bros. Entertainment

superheroes. We both believe the key to success in radio mic'ing is preparation. It is so important to see the fabrics and costumes early on. Prior to *WW84*, we had both worked with our Costume Designer, Lindy Hemming, and her Set Supervisor, Dan Grace. Because of this relationship, our attention to detail, and their willingness to understand our concerns, we were able to change the fabric in one piece of wardrobe, as well as resoling shoes for actor Chris Pine. With our reliance on radio mics and the importance of clean iso tracks for editorial for all speaking characters, the relationship between Wardrobe and Sound must be truly collaborative.

In that busy first month, we managed to bring to life the world that Diana found herself in the 1980's, featuring Watergate, Georgetown, and a nighttime walk and talk with the Lincoln Memorial as a backdrop. Our traveling circus made Leavesden Studios our next place to pitch our tents. Filming in the UK also meant that production licensed all my radio mics through OFCOM for the time I was there. It was here that I started with a new team of Adam Ridge, 1st Assistant, Milos Momcilovic, 2nd Assistant, and our Trainee, Pete Blaxill. I had several days of prep in London and time to get to know the local team. Milos had worked with me on *Transformers 5* and so impressed me with a great attitude in challenging situations. Adam had come recommended to me by fellow Belfast Mixer, Mervyn Moore.



Ray Milazzo, A Camera 1st AC, and Boom Operator Ben Greaves



Sound Trainee Peter Blaxill

We got to know each other at the first order of business, a tech scout of a set that would be at the Royal College of Physicians in central London. I had been warned that it would be a sound problem. It was a critical scene in the film, where characters Diana Prince and Steve Trevor are reunited after a period of almost seventy years. It was a location with lots of background, high heels, and dialog underneath the center point of a semi-spherical ceiling; totally non-conductive to recording quiet dialog. My suggestion was to have acoustical engineers come in and put in some temporary baffling that could be later removed. I was told that nothing could be erected in the space, so our quick-fix solution was to have balloons filled with helium and floated to the ceiling to diminish and break up the reflections. It certainly helped and we managed to get out of that location unscathed. During those three nights, there were some questionable music choices from 1984 that were used as playback to motivate our crew and cast!!!

As we moved into September the nights grew cooler, and we took advantage of many London locations that would double for Washington, D.C. One particular location called “Black Gold” in the film, was the home of one of our protagonists, Max Lord, played by Pedro Pascal. It was here that I was introduced to “Silent Wind.” Special FX Dave and Mark Holt, brothers, designed a system that would bring a quick blast of air to create movement in our actors’ hair and clothes. They built a system that keeps the main body of the wind machine far enough away and carries the air through tubes to the set, thereby minimizing the intrusion of noise on the soundtrack.





Director Patty Jenkins and Peter Devlin



From left: Adam Ridge, Peter Devlin, Pete Blaxill, and Milos Momcilovic

This was a welcome relief from an e-fan and a rheostat just off camera. I can't thank Dave and Mark enough as they were always mindful of how practical on set Special FX can impact the Sound Department. They were always accommodating in adjusting for many scenes in the film. On one occasion they did ask, "Isn't there a system on your cart that takes out that background noise?" Well, that is a discussion for another time, and another place!!!

With Carnet's done, lithium batteries specially packed, we were on the road again mid-September, leaving 1984 behind. We were off to Fuerteventura, aka "Themyscira" for flashback sequences of Diana as a child with the amazingly talented Lilly Aspell. It was here that we encountered some serious dust storms, the residue of which is still making an appearance on my equipment. Fuerteventura is aptly named "strong wind," yet for many of the dialog sequences we got lucky with a calmness that was uncharacteristic for that time of year.

Milos, who dealt with much of the wiring, was relieved that his rigs designed for 30 mph gusts were not needed, Adam was kept busy with Stereo FX recording when we got into crowd sequences, as well as dialog scenes with our Amazonian warriors. Trainee Pete Blaxill did a great job of cleaning and maintaining the equipment. For much of our time there, I was able to set up camp alongside Video Assist Dylan Jones in a Sprinter van that offered some relief on windy days and was also used for our driving sequences.



Dylan was great company and kept a cool head at all times and had a great team of assistants with him.

Once we had finished our work in the Gran Canaries, it was back to Leavesden to concentrate on stage work that would take us through December. Although I didn't get to see Simon Hayes at the same studio, I know he was very busy in prep for *Cats*. Fortunately, I was able to sit down with Simon and Chris Munro for the CAS podcasts *In Conversation*. My thanks to them for making the time on a Saturday to go into De Lane Lea in Soho. If you haven't heard the podcast, check it out with others on the CAS website.

As I sat in these massive sets so beautifully designed at WB's Leavesden, it brought me back to being a kid in Belfast, at the the Avenue Cinema, watching Christopher Reeve as "Superman" fly for the first time. With each film that I saw; *Jaws*, *Earthquake*, *The Omen*, and so many others, I became more determined to find a way to work in the film industry. I could never have imagined what would lie ahead.

We finally wrapped production of *Wonder Woman 1984* on December 19, 2018. It was an epic journey and a wonderful opportunity to work with Patty Jenkins again. Our first outing together was on the film *Monster* in 2005. Patty is still as receptive to comments and suggestions regarding the soundtrack as she was then. She understands the practicalities of a set, having been a camera assistant. With a camera team that had Matt Jensen as DP, A Camera Operator, Steadicam, Simon Jayes, and B Camera Operator Simon Finney, we couldn't have asked for a greater synergy.

Post-production was handled by Warner Bros. De Lane Lea. Richard King was the Supervising Sound Editor alongside Jimmy Boyle. Re-recording Mixers Gary Rizzo and Gilbert Lake were on an AMS Neve DFC in Theater A. Iain Eyre would be the Dialog Editor, along with many others in the talented editorial crew. On completion of photography. I spoke with them giving an outline of areas that could be problematic with noise, and a rundown of my methodology and equipment used.

In November of 2019, I set off to London again to sit in with the post team on the final mix, and to watch and listen as those raw tracks become part of something that connects performance to all the other elements. One of the greatest thrills for me was Patty Jenkins inviting me to watch Hans Zimmer at work as they recorded the score for the film. The orchestra and choir were absolutely amazing. It is that circle of talent that makes the connection, becoming one with picture to make a finished soundtrack.

Equipment List

I decided I wanted two mixers on the cart. I love the pre-amps of the Sonosax but I wanted the ability to integrate the Zaxcom Mix 16 if I went to a bigger track count.

With the Deva 24 having the settings memories to switch between different setups, it was fairly easy to go back-and-forth or have both mixers working in tandem. The one thing that I find indispensable, in using the Zaxcom TRX743 transmitters, is the ability to remote gain them. When paired with the technology of Never Clip, it is difficult to be caught by surprise when an actor goes from a whisper to a scream in an unrehearsed scene. Zaxnet offers so much control from the recorder. The ZMT's onboard record capabilities were essential to cover the expansive areas on Pennsylvania Avenue with *Wonder Woman*. Driving sequences in Fuerteventura were handled with the knowledge that if the picture car went beyond the range of our follow vehicle, all the performances would be captured by the onboard sd cards in the Zaxcom transmitters for later transfer or remix.

Equipment Package

- Exterior Mics - Sanken CS-3 in a Cinela Blimp
- Sanken CS-1 in a Cosi Blimp
- Stereo FX on a Sanken CS-5 or spaced Sanken CS-3's
- Interior Mics - Sennheiser MKH50's in Cinela mounts, Sennheiser MKH 8050's in Cinela mounts
- Interior Stereo FX recording, crossed pair of Sennheiser MKH50's
- Lavaliers - Sanken Cos 11's
- Button or exposed mic - Countryman B6
- Wireless Transmitters
- Zaxcom
 - TRX743's
 - ZMT's
- Lectrosonics
 - SMQV
 - SMVL
 - SSMWB
 - SSM



The back of Peter's sound cart

Cart Front

- Mixer 8 Channel Sonosax SX-ST (Digital Busses)
- Zaxcom Mix 16
- Lectrosonics Venue 1 Blocks 19, 20, and 25
- Lectrosonics Venue 2 Blocks A, B, and C
- Zaxcom RX 12 Receivers, Wisycom Powered Antenna Distribution
- Wisycom HTP40 Transmitter
- Meon Life + Meon Plus
- Marshall Link Monitors

Cart Back

- Jack Field
- Lectrosonics Dual Receiver (Boom Ops Talk Back)
- Wisycom MTP40S IFB Transmitter to Boom Ops
- Sound Devices 3 Channels Receiver for Boom Op Talk Backs
- Comtek BST-25 Transmitter
- IFBT4 Transmitter
- Zaxnet IFB system for remote control of Zax Wireless
- Denecke GR-2

I would like to thank Lorenzo Milan and his crew who joined us for Second Unit in Washington, and Shaun Mills in London, who handled Second Unit there. Paul Munro was on hand to handle additional photography whilst I was on *Star Trek Picard*, and the many others who joined us on dailies through the course of the shoot in London. You can check out who they all are on IMDb as it's a long list and would take up this entire magazine.

In particular, I would like to conclude in thanking my crew in the US, Ben and Nate for starting the show on a particularly exciting morning at the Air and Space Museum in D.C. In London, Adam, Milos, and Pete, who throughout the course of our many days and nights brought a level of positivity and professionalism that made our time together memorable. Especially our night at the Air Museum at Duxford, where clothing noise became an additional character in the scene that wouldn't take the hint and leave, and when I considered a career break!!!

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YOUR
WOMAN**

BEST SOUND

Production Sound Mixer Christopher Strollo Supervising Sound Editors Mildred Iatrou Morgan, Douglas Jackson Re-Recording Mixers Julian Slater, Andy Hay cas

"A STUNNER..."

a tense, minutely crafted
crime drama that's as
patient as it is thrilling"

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**AMAZON
STUDIOS**

NEWS OF THE WORLD

by John Pritchett CAS



Helena Zengel as Johanna Leonberger and
Tom Hanks as Captain Jefferson Kyle Kidd.
Photo: Bruce W. Talamon/Universal Pictures

Rising up over a hill, you turn onto the road leading to the Galisteo Ranch outside of Santa Fe, NM, looking across the cactus-filled desert to observe an odd sight. In the distance is a strange caravan being led by a small buckboard wagon pulled by a single horse and carrying a middle-aged man and a ten-year-old girl. They are having a mostly one-sided conversation. Behind the wagon is an even stranger sight, a parade of vehicles starting with a truck-like thing with a large crane and a bunch of bundled up characters hanging on all sides. That is followed by two very large vans festooned with antennas and such, and then by an extended line of assorted other vehicles comprising

several smaller vans, smaller trucks, a trailer carrying supplies, and food, and finally, a trailer loaded with two portable toilets. The entire train is moving slowly across the largely uncharted wasteland, dodging cholla and saguaro and gopher holes to get to an end at some point, only to turn around and go back where it started.

The locations in New Mexico offer tons of unique, at least in this country, challenges for each department and cast alike. Many of the sets sat on dirt fields and roads that turned into mud morasses at the least rain, which we got plenty of. The Grips and Transpo were constantly having



to assist in getting us out and back to work. And then toward the end came the snow! Years ago, while working on *Wyatt Earp* in many of the exact same locations, we had a surprise snowstorm as we were setting up to start a multi-day daylight scene. The decision was made to shoot anyway. By the next morning, the snow was all gone. Effects had to find and bring in snow, foam, and ice-making machines so we could continue to shoot. This is a pretty common experience in New Mexico. But the place is just too awesome to resist.

What I'm describing, of course, is the filming of a scene for



(L-R) Steadicam Operator James Goldman, Director Paul Greengrass, and 1st AD Eric Heffron

a movie, in this case, the movie *News of the World*. This will be part of Paul Greengrass' (*Captain Phillips*, *The Bourne Ultimatum*) latest effort, and his first Western. It stars Tom Hanks as Captain Jefferson Kyle Kidd, and Helena Zengel as Johanna.

The movie, set in 1870 after the Civil War, tells the story of Kidd, who is widowed, before he could arrive back to his home in San Antonio. He then leaves his home to travel to small towns and villages throughout the South and West, bringing news and stories from afar to the people; regaling them with tales of wars, triumphs, joy, and sadness that they would otherwise never know.

Along the way, he is offered money to bring a ten-year-old girl, stolen as a toddler by Kiowa Indians from her murdered family and raised as one of their own, back to her extended family four hundred miles away in San Antonio. She speaks no English, and at every opportunity tries to escape Kidd to get back to her Kiowa "family." Adventure ensues.

This is also the story of the many challenges that arose trying to, in my case, record the audio on this enterprise. It turned out to be harder than expected. First of all, there's the location. This was my third outing in the Santa Fe area. I know many of you who have shot here remember the wind, the dust, the sand, the wind, the rain, the snow, the wind and the ever-present Wind. There is a dust storm where Kidd nearly loses Johanna, that is a true brute! But what I hadn't endured before was the challenge of recording dialog in a real practical buckboard, and driving it over open desert, and hard-packed regolith and unseen pits. It's a very, very noisy vehicle! The amazing grip crew did yeoman's work to try and de-rattle it, and often had good success. But some noises were insurmountable. I thought they would have to loop all the scenes in the wagon.

Turns out I was wrong. Thanks to the phenomenal work of Oliver Tarney and crew, the dialog was made usable.



Clockwise from top: Zengel and Hanks. Photo: Bruce W. Talamon/Universal Pictures; Boom Operator Dave Roberts; Dave Roberts takes a test drive; Roberts pondering..

It's here that I need to mention the terrific Second Unit and splinter crew that did so much to aid the soundtrack. David Brownlow came in to do all the insane chase scenes and the physical stuff with Boom Zach Sneesby and Utility Jason Pinney, while the magnificent David Sickles (I owe him money, I think) came in for a few days to cover for me when the company went high into the rock where some old guys (me) dare not venture.

This story would not be complete without mentioning the remarkable DIT Ryan Nguyen, who had to keep up with the constantly moving targets, and all the cameras, to give us great images. Finally, the very congenial Video Assist guy, Adam Barth. Adam's job was especially difficult as we were constantly on the move. He rigged his SUV with monitors on the outside so his "village" could go anywhere it was needed, but still had to put up other villages, as well for makeup, hair, and costumes. He was a real trooper These fellows made it all look easy and helped out immeasurably.

As far as my setup is concerned, I'm a tad old school (or just old) in that I still use, and have for many years, the Zaxcom Cameo mixer and the Zaxcom Deva 8-track recorder. All of my wireesses are Lectrosonics SMA's and HM plug-ons. Mercifully, the Santa Fe area is a largely conflict-free zone for RF issues. Added, the costumes, being soft period garb, made wiring actors mostly problem-free. For all the moving shots, I used the Zax Mix 12 sitting on my lap as we traveled in the caravan. For the boom, I use the amazing Schoeps CMIT and the Cinela Piano. It turns out that the boom was extremely important as the winds were often hard to deal with on the wires.

My intrepid Boom Operator, Dave Roberts, would do the insane task of walking (jogging really) alongside the buckboard or the horse Hanks and Zengel rode through a manmade raging "river," managing to not get hung up on the ubiquitous cactus or fall into a gopher hole, a scary sight to see. Our amazing Third, Rob Hidalgo, kept up



L-R: John mixing from the "Beast"; the buckboard from John's perspective

with all the wiring and keeping the costumers happy. The large transport van was a godsend, saving us from the cold and wind, and gave shelter for myself, the Director, the DP (the brilliant Dariusz Wolski), Paul, Video Assist, and DIT.

Those of you who have been fortunate enough to work with Hanks know what a joy he is, never having any kind of issue with anything any department might ask of him. Add to that, Paul Greengrass' amazing embrace of sound. Many times during most days, Paul would do something only Oliver Stone had done with me. He would come over to me, or ask me to come to his tent and request something specific for the sound. He had a very Robert Altman approach to crowd scenes in that he wanted to "let

her rip" with everyone vocalizing fully which, of course, caused Hanks to play to that. It's always a risky move, but Paul, for all the right reasons, wanted it. There is an energy there that is hard to get doing it the pantomime way.

About our Producer, Gary Goetzman, I cannot say enough good things. He's one of the most supportive guys in the business. His encouraging words were always there when our confidence might ebb (remember the winds). I've had the great privilege of working for him over the years on several Hanks starrers, including *That Thing You Do!*, *Larry Crowne*, and *Saving Mr. Banks*. Many thanks to Gary's Co-producer, Greg Goodman, who was always there taking care of everyone's needs.





BOND 25:

No Time to Die

(PART 1)

by Simon Hayes AMPS CAS

The story starts in 1977 when I was seven years old. My father took me to the cinema to see *The Spy Who Loved Me*. Enthralled by the world of the secret service and the suave and debonair hero who loved cars and gadgets, I was sold. The deal was done when the Lotus Esprit turned into a submarine in the beautifully clear Caribbean, and then drove out onto the beach. I was hooked, from that moment.



I would watch the Bond movies in the cinema at every opportunity even when they were re-run on television, and each time I watched, I became more interested in the character and the franchise. When I eventually got a job in the film industry, it was my absolute aim to work on a Bond film. This was cemented during my time as an 'in house runner' (PA) at a commercials production company, as a teenager. I can remember clearly the respect for the crew members they were trying to book for a commercial by the Producers and Directors, when they were not available because "they're on the Bond." The more time I spent on film sets, the more I would be exposed to stories being told during camera turnarounds, lighting setups, or at lunchtime by crew members waxing lyrical about "when we were on the Bond."

During my childhood, I built the franchise up to be one of the pinnacles of filmmaking. When I arrived in the industry, I realised that working on a Bond film was seen as a badge of honour; a sign that a technician was at the top of their game. And, boy—did I want to be one of those technicians.

Fast-forward thirty years and I found myself booked for a Bond movie. Not just any Bond movie either; this was to be Daniel Craig's last outing in the role, on the twenty-fifth Bond film. My crew and I had worked with Daniel on the film *Layer Cake* before he was cast as Bond, and we really enjoyed working with him. Daniel is a perfectionist, and knowing how hard he works and how much he values production sound, made me more excited about the project. We have an easy rapport which extends to my team, especially Arthur Fenn, my Key 1st Assistant Sound, who gets on extremely well with Daniel. I knew based on our previous experience that working with Daniel was going to be a pleasure. As so many of you reading this will know, if the star of the show respects and collaborates with the Sound Department, then the rest of the cast generally will follow suit.

I was invited to the offices of Eon Productions in Mayfair, London, an imposing building in the heart of the city. The production team wanted me to meet Cary Fukunaga; it is always quite intriguing meeting a director for the first time. To get myself up to speed, I watched a bunch of Cary's work to learn his shooting style, and how he uses production sound. I was super-excited on how little ADR there seemed to be in his films. When I arrived, I was warmly welcomed by Producer Chris Brigham and invited to join Cary, as well as Producers Michael G. Wilson and Gregg Wilson. There was an ease to the conversation as soon as we started, and it became clear how interested everyone around the table was about sound, not only production sound, but theatre sound systems, home Hi-Fi, Dolby Atmos; it was literally like talking to other Sound Mixers. Cary asked me if I'd ever recorded on a Nagra. I told him that I was fortunate enough to have spent my first six years mixing on a Nagra, on hundreds of commercials, starting on a IV-S that I had converted to timecode when I'd saved up enough money. Cary looked excited and asked if I still had one, Gregg Wilson cut in saying, "I've got a Nagra, I adore them." Michael G. Wilson talked about the Swiss workmanship, at this point I knew I was sitting at a very special table full of real film audio enthusiasts. I told Cary I still had my Nagra at home on display, and he said, "We have a flashback sequence on the film that I'd really like you to record on a Nagra to give it an old school feel." I told him how interesting I found that, and that I'd also like to run my Deva 24, alongside the Nagra to give him a choice in post. I explained that perhaps when he listens to the Nagra through a modern digital theatre system, he may feel the analog sound is too old school. However, if he wished, he could use the Nagra as a reference, and treat the Deva digital recordings with a plugin to give them the warmth of the Nagra analog recording, but not going quite as far with the analog tape hiss. Cary said that is exactly how he likes to work—he wants choices in Post. I agreed, that is exactly my preference too: give the Director, Supervising Sound Editor,



Director Cary Fukunaga, Linus Sandgren, DP, and Simon Hayes



Arthur Fenn, Key 1st AS, and Simon



Ben getting the DB5's ready for a wildtrack

Dialog Editor, and Re-recording Mixer options to choose from. I am completely aware that the way a scene reads in a script may change completely once in picture editorial, and being locked into one specific production sound workflow can be limiting and irritating. As Production Sound Mixers record a scene, we cannot know, how loud the score is going to play or how the Director and Picture Editor may intercut the scene with others, to match dialog perspectives. Cary and myself were speaking exactly the same language, and a burgeoning relationship was developing.

Cary told me that some of the situations were going to be tough, as he wanted to use IMAX cameras for significant sequences during the film. He explained that he was aware they were noisy but he was also pretty sure the dialog on those scenes was going to be minimal, as they were mainly action and stunt sequences. I spoke to him about signal to noise, and how I would try to achieve dialog recordings on the IMAX sequences that would hopefully not need ADR. Cary doesn't like to use ADR for technical reasons and if at all possible, he'd like to use the production dialog on the IMAX scenes, which would generally be loud sequences with the cast shouting. They would have a lot of FX and score laid underneath which we both felt would help to hide the IMAX camera noise without having to go too far with noise reduction in post. We spoke at length about the Schoeps Super CMIT's I like to use when recording scenes where there is a lot of background noise, and he was impressed when I explained I would be recording two tracks from each boom mic; the processed signal with 10db off-axis noise reduction and the unprocessed signal with the usual 4db off-axis reduction of a standard CMIT microphone.

Cary and the producers said that they'd like me to run some tests with the IMAX cameras that could be listened to by Supervising Sound Editor Oliver Tarney, so he could assess the

camera noise, treat it with some different de-noising plugins, and see what could be achieved. It was a great idea and it would be really helpful for all of us to know exactly what the limits were in terms of proximity of the camera to the dialog, booms versus lavaliers and how each source would react to the de-noising. Cary said when Oliver had worked on the dialog, we could reconvene and listen to the results in a viewing theatre.

When I left the Eon building, I felt like I'd had a really collaborative meeting with filmmakers who deeply care about sound, and wanted to preserve the all-important original performances. I knew we were at a great starting point and rather than seeing the IMAX camera noise issue as a negative, I started planning how I could minimise the issue and make it work for Cary and our cast.

We set up a test where we ran dialog on exteriors and interiors, on different boom positions, and performance levels from whispers to shouts. For the exteriors, we used Schoeps Super CMIT's and DPA 4061 lavaliers. On the interiors we tested my preferred interior boom mic, the Schoeps CMC6 and MK41 hyper cardioid.

The IMAX camera was loud, but I know that de-noising technology has really come on leaps and bounds in recent years, and what I needed to deliver to Oliver and his sound post team was a good signal (dialog) to noise (camera) ratio. The greater the ratio, the more ability they would have of successfully cleaning and preserving the original performances. I also knew that a Bond film is generally going to have a driving score and loud sound effects that would help the process of hiding the unwanted camera noise, and the de-noising process would not need to be too aggressive.

After Oliver received the tests, I spoke to him at length where he explained that the camera noise was filterable but only under certain parameters. The dialog needed to be a close perspective; whether that be the boom in close-up, or the lavalier didn't really matter. This ruled out the possibility for a boom to be used in a mid-shot or wide position. In those instances, Oliver and his Dialog Editor, Becki Ponting, would use the lavalier as it had better signal to noise for the cleanup. We also discovered that the Schoeps Super CMIT should be used on interiors, as well as exteriors if we were shooting IMAX, as the wider pick up pattern of the Schoeps CMC6/MK41 was unsuitable for reducing the camera noise enough, even in a close-up position. Whenever we were shooting IMAX, we would be using the Super CMIT's and DPA 4061 or DPA 6061 lavaliers to give sound post the best chance of cleaning the recordings. The Super CMIT's supplied both

processed and unprocessed channels, which gave Oliver and his team choices; rather than a 'one size fits all' approach, and they would decide which channel to use in every situation and scene.

At the viewing theatre at Pinewood Studios, Linus Sandgren, Cary's wonderful DP, joined us to listen to the tests so he could get a handle on how the noise of the IMAX would impact the performances. Cary's 1st Assistant Director, Jon Mallard, was also present who would become an extremely strong ally of the Sound Department. Linus and Jon were absolute gentlemen, really enthusiastic collaborative filmmakers, who treated everything we did throughout the movie as team work.

After listening to Oliver's cleaned-up tracks, it was evident to Cary that the IMAX could work for action sequences that would have loud dialog and a driving score. For softer level drama, we would shoot 35mm film and for larger set pieces, stunt work, and chase/fight sequences, we would shoot IMAX. We all left the theatre confident we had found a workable solution without too much compromise and that we could go ahead and use the IMAX cameras in certain conditions, without having to commit the scenes to ADR.

The next item on my agenda was to start to plan a workflow for lavaliers with Arthur, my Key 1st AS, who is a first-class boom operator and also manages the lavaliers and places them on the cast. A number of years ago, Arthur took on this role when we started shooting multi-cameras and we realised that the boom wasn't going to be able to be prioritised in every scene. He has become an absolutely excellent radio mic technician who has an ease and ability to interact with the cast members with a very comfortable and confident charm. If you saw Arthur on a set without his boom pole, only his headphones would give away his role in the Sound Department. He carries a bag on his shoulder, with needle, thread, safety pins, and double-sided tape, giving the impression that he is a member of the costume department, and that is exactly how he behaves around the actors.

When we previously worked with Daniel, we were shooting single camera, and were at the stage in our filmmaking careers where it was possible to use lavaliers sparingly, as two booms could pretty much cover anything a single camera could throw at us. Arthur and I remembered that Daniel is very particular about how the transmitters can create problems in the way his fitted suits hang on the body if the placement of the pack isn't specifically planned in advance. We also knew that Daniel likes his tie knots to be uncompromised so he can have them in the fashion that the particular suit he is wearing demands. This was very important because of the amount of time Bond spends wearing a suit. Based on this we knew, we needed to reduce the size of the pack and lavaliers Daniel would wear. We decided that Bond would always be rigged with the newly available and absolutely tiny DPA 6061. Having used the 6061 on a couple of movies, I was happy that its small size would not compromise its ability to deliver extremely rich and clear dialog. As far as I am concerned, it is just as good as my go-to lavalier, the DPA 4061. I could use 4061's on other cast members who didn't have such difficult costumes and that the two different mics could be mixed and intercut seamlessly. The really great factor with the 6061 was that we could fit one in Bond's tie knot without it being seen and not compromising the type of tie knot appropriate for the style of suit Bond was wearing. Even a really modern, slim tie knot could

have a 6061 hidden inside it invisibly.

We then started to discuss his radio pack. I generally use Lectrosonics for several reasons; first, the build quality is just phenomenal—if a pack gets dropped, it survives, and I have never had a pack fail from a fall. Second, all of my crew have the Lectrosonics app, LectroRM on their cellphones, and are adept at quickly changing gain settings when I ask them over our sound crew comms. We start with a base level

on a rehearsal, or sometimes the first Take, after which, I start fine-tuning the gain settings, increasing three or 4dB for whisperers. It is rare for us to reduce gain as my base level setting is one that is impossible for the human voice to cause a square wave regardless of how loud they shout. This is assisted by the limiter in the Lectrosonics transmitters but also that I'm quite conservative with my base-level setting. As I manipulate the gains, I try to achieve a setting that won't be so high that it engages the limiter on loud parts of the dialog. I try to record without any limiters through the whole recording chain, preferring to deliver raw, uncompressed dialog to Sound Post, so that Re-recording Mixer Paul Massey can choose to use compression later, based on how the dialog will play when mixed with the score and sound effects. I try to use enough headroom to minimise the limiter kicking in.

Our go-to radio packs are Lectrosonics SMB's, which are really small. However, to really show Daniel we were pulling out all the stops, myself and Arthur decided to dedicate the tiny, super-micro Lectrosonics SSM to Bond full time. We generally only use the SSM for specific costumes (bathing suits, bikinis, ball dresses, etc.) as there is a slight compromise in output power and battery life. However, because I knew Arthur has a great relationship with Daniel if we needed to change battery at a difficult moment, it would be cool. Obviously, that was never our intention, but the SMB will do a whole morning until lunch, whereas the SSM runs out about thirty minutes earlier. With the ability to 'sleep' the radio pack using the cellphone app, we knew that Arthur would be powering down Daniel's pack wherever possible. This would not only give Daniel confidence he had privacy when not on set, but also increase the period between battery changes. Arthur would talk to Daniel before rigging the costume and find out whether





he wanted an ankle pack, calf pack, in the small of his back, or hidden in his jacket. Daniel could base his decision on the action he was required to do, rather than where a 'bulge' would be less visible, because the SSM simply didn't cause bulges in the costume. There were times when we asked Daniel to wear two radio mics, especially when he was in military webbing, because of severe head turns in action sequences, and clothing rustle the webbing can create. This generally happens on one side of the body but not the other, meaning that if radio one had a rustle on it, radio two on the other side of Bond's chest was clean. Each mic was assigned their own track on the Zaxcom Deva 24. We didn't overuse this strategy. Daniel was being very generous in letting us use two mics, and we

didn't want him to think it was a 'belt and braces' situation, so we only asked when we felt we really needed it, explaining why, and Daniel kindly accommodated the request.

The rest of the cast were assigned Lectrosonics SMB transmitters and DPA 4061 mics unless there was a specific costume that required an SSM and a 6061; for instance, Ana De Armas's stunning ball dress.

Robin Johnson, my other 1st Assistant Sound, is responsible for frequency mapping all the radio mics and comms, so he assigned a general plan that would allow me to run twenty radio mics at all times, only having to adjust and fine-tune specific frequencies if we had issues on location. We were actually incredibly fortunate that during the making of *No Time to Die* in Norway, Italy, Jamaica, and the UK, we didn't come up against any negative frequency situations, and apart from a few minor tweaks, our frequency plot remained the same throughout the film.

Vehicles are a huge part of what makes a Bond movie. Oliver Tarney asked me how I was planning to mic up the vehicles and I was happy to use whatever workflow he preferred. Whatever he asked me to do on main unit, I would also ask our Second Unit Sound Mixer, Tom Barrow, to mirror. Oliver asked for a stereo pair of lavaliers on the exhaust region of the cars that were being featured in each scene. He also asked that we use 'spot mics' (lavaliers) on any other parts of the vehicle that we felt gave interesting sounds. We would generally try to place a lav in the engine bay and then think about other unique sound effects the particular vehicle would give us. In Jamaica, Bond was driving an old school Land Rover, so it was the gear shift that had an old, grinding sound to it which I thought would mix well with the stereo exhaust tracks and the engine bay track, to wrap the theatre audience acoustically in exactly what it sounds like to be driving one. This was how we treated each vehicle—find the stereo sweet spot on the exhaust and then add spot mics to pick up the other effects that would build a unique sound of each vehicle.

I knew on *No Time to Die* we were going to come up against some huge SPLs for extended periods, as a lot of the vehicles were highly tuned and would be driving at high speeds with tire squeal, etc. There was also a bunch of motorcycles to consider. This motivated me to buy some specific lavs for the job. As I am extremely happy with the famous DPA frequency response—i.e., pretty much flat from 20Hz to 20kHz—and I wanted to stick with the brand I knew and trusted, but I wanted to know I had the headroom to cope with anything, so I purchased some DPA 4062 lavaliers. These are acoustically the same as our favourite 4061, but give another whole 10dB of headroom, with the max SPL a huge 154dB. As soon as we tested them, I knew they were a great addition to the kit. They could be mounted very close to sound sources to make the effects we were recording clean of other unwanted noise, and were virtually impossible to square wave. These 4062's became our 'vehicle kit.' Tom Barrow and our second unit sound team did the same.

We were ready to start shooting. We had been through each scene formulating a creative plan for our approach to the sound recording, and then putting together a technical plan to help us achieve our creative aims. The first week would be a pre-shoot in Norway, shooting the flashback scenes. This meant I needed to get my old Nagra IV-S TC from its display in my screening room at home, and check it was still working. It was, and just putting batteries in it, and loading a roll of quarter-inch tape had me reminiscing about the start of my career. The texture of the alloy case and the feeling of the record lever in my hand were so wonderful to feel again. The Nagra had not been used since 1995, so I decided I had better get it checked over. Back in the day, the man who had regularly serviced the machine and converted it to timecode was the famous David Lane, who has since passed away (RIP). I knew there was another famous London-based Nagra technician who collects, repairs, and deals in old Nagras, a former Sound Mixer called Mike Harris. One of the issues was finding quarter-inch tape stock, and thankfully Mike had a source in Paris, and ordered some. Mike did a fantastic job servicing it and resetting the tape bias for the new brand of tape we would be using, as the old BASF 468 tape is no longer available. Mike said the machine was in perfect condition and saw no reason why it shouldn't display the same bulletproof reliability in Norway that Nagras have always been famous for.

In Norway, a significant percentage of the scenes would be filmed on IMAX cameras, and for that reason, I wanted to record on our usual Zaxcom Deva 24, alongside the Nagra. We could supply our usual ISO tracks to Oliver and his Post team, and I completely understood Cary's wish to have an old school analog feel to the recordings. I also wanted to use two Schoeps Super CMIT booms to give Sound Post the best opportunity to remove the camera noise. Using two Super CMIT's takes up four tracks, and I also wanted to radio mic every actor, so I knew we would potentially be running up to ten tracks on this part of the film. I recorded my mix onto the Nagra to serve as a reference for Oliver to create a 'Nagra sound' from my Deva 24 ISO tracks, it would give him the ability to remix and de-noise individual tracks, rather than being forced into doing a more general de-noise on the Nagra mix track. If I only supplied a mono mix on quarter inch, I worried that it would potentially lead to ADR. As per my usual workflow, it was my aim to supply Sound Post with



Dylan Jones, Video Playback, Simon on main cart, and Robin on Zuca cart.



Matera



Clockwise from top right: Ben, Arthur, Simon, Frankie



Zuca cart contents



Simon mixing boat to boat, Italy

the most choices possible to have the best ability to get usable production sound.

It was the end of winter when we arrived in Norway. We were shooting in a forest, waist deep in snow, and on a frozen lake, both of which had their own challenges not least due to the extremely low temperatures we were working in. One of my methods of working in these conditions is to keep the sound cart and all the equipment on it powered up at all times, to avoid heat cycles and frozen switches. The best way to avoid equipment failure, and the way to keep it ready to roll at any time, is to not power cycle it at all. We would leave the equipment in a sound truck all night on location, with the driver instructed to keep the heating in the rear of truck turned on. When we arrived at work each morning, we would power up the warm equipment, and wheel it out into the freezing cold temperatures and leave it switched on all day. This is particularly important for the Nagra as it avoids the brakes from freezing.

It was mainly sound effects we were capturing when we started shooting. It became clear that any 'camera perspective' sound would be unusable due to the noise of the IMAX camera, despite the Super CMIT's, so we concentrated on recording close-up perspectives. The sequence involved one of our lead cast members trudging through the forest in deep snow and arriving at the lake (I don't want to give away story and plot lines here as you're potentially reading this article before the movie's release). I decided that the suspense could be built using the different textures of footsteps through the characters' journey. We placed three lavs on the actor: one on his left calf, one on his right calf, and one on his chest for his breathing, which was heavy from the effort of walking through the deep snow. When I imagined what I would expect a scene in a Bond movie to sound like, it was these effects with the score that I felt would give Cary the ability to build layers of sound and create suspense in the final mix. The reason we mic'd up the actor's calf rather than boots is because the snow was so deep that, had we have placed them on the boots, the lavs would have been immersed in snow on every footstep. The actor was wearing 'crampons' (metal grips used for walking in snow) that really gave us an ominous sound. Mixed with his deep breathing, I was confident we were getting the exact components Cary would use. To make absolutely sure we had everything covered, and were giving the all-important choices to post, we went off into the forest while the rest of the crew were shooting some high-speed MOS shots. We recorded one of

my assistants wearing the same boots and crampons, walking and running at different speeds through different depths of snow, and on ice using the Super CMIT's; effectively recording a library of on-set Foley for the scene, should Sound Post want to use these additional layers. Snow and ice underfoot are very unique sounds and may be difficult to reproduce on a Foley stage, so I felt it was important to make sure we were completely covered.

One night on the way back from our shooting location to the tech trucks, I was wheeling my cart across the frozen lake. I usually move the cart on my own, as it is a relatively lightweight Eurocart. This leaves my crew to manage the rest of the equipment: follow cart, etc. It was pretty dark and unfortunately, there was a dip in the ice that took me by surprise and one of the cart wheels dropped about twelve inches into a watery hole. This resulted in my losing control of the cart and it going down on its side. All of the equipment was strapped tightly to the cart except the Nagra, which I had not strapped up tightly enough since the last reload. It was on top of the Deva 24, and slipped into the watery hole and was completely submerged for about two seconds until I grabbed it. All of our recordings had also been mirrored on the Deva 24, but I was super concerned I was going to have to tell Cary the next day that the Nagra wasn't working. The first thing I did was quickly remove the batteries from it to try to avoid shorting it out. We then took the equipment back to the warm sound truck and opened the Nagra up. Luckily, there wasn't much sign of water ingress and we left the machine open, under an electric fan heater all night on the truck. We told the truck driver how important it was to not unhook from the generator overnight. I feared the worst when we arrived the next morning, we put the batteries in and I held my breath and switched the machine on—it powered up! I played back the previous day's recordings and they sounded great. We weren't sending the quarter-inch tapes with dailies to avoid causing issues in Editorial. We would give the whole batch to Sound Post at the end of the job. We took the Nagra to set and recorded on it, and it worked for the rest of the Norway shoot faultlessly. It reminded me why we used the Nagra, and why it stayed on top as the industry's machine of choice for so many decades.

Part 2 of "Bond 25:" No Time to Die continues in the spring edition as Simon Hayes and crew travel to Jamaica.

FISHER BOOMS ON SUPERSTORE

by Richard Lightstone CAS AMPS



Steve Cain and the long reach of the Model 2 arm.



Aside from on-set COVID-19 safety protocols, one of the major health and safety concerns for Boom Operators in Local 695 is shoulder and back injuries due to the ever-increasing long takes while using boom poles.

In 1951, James L. Fisher designed a mechanical boom arm and base, known worldwide as the Fisher boom. Fisher booms were in use on most sets and locations for at least forty of the past sixty years. Changes in set design, the construction of four-walled sets and production's reluctance to "fly walls," made the use of the Fisher harder to employ on movie and television shows, although still prevalent on productions and sitcoms.

With the use of HD cameras, Boom Operators are forced to hold the boom pole for takes lasting between twenty and even forty minutes at a time. This is obviously untenable and unsafe.

Steve Cain, and his son Shannon, who are the Boom Operators of NBC's *Superstore*, explained, "The first season we were living on eight and six-step ladders for the entire day. It was a really hard show, as we shoot with three cameras; two wing and a middle camera. The takes lasted a long time 'cause it was digital. They would reset and do several passes within each take without cutting." Shannon continues, "You're fully extended with a sixteen-foot pole pretty much the whole day."

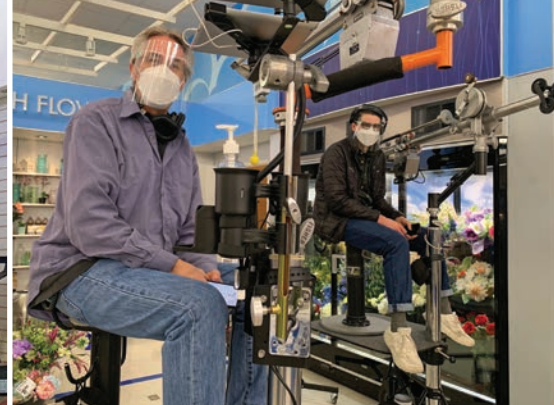
Sound Mixer Darin Knight went to production to explain that this was a health and safety issue, with the concern that someone could fall from the ladder and or drop the boom, injuring themselves or others. Takes were lasting fifteen minutes a piece with half a dozen shots for each scene. Darin successfully lobbied for one Model 3 Fisher boom with the Model 2 arm, that extends to sixteen feet. A second Fisher was added in season three and they operate with offset arms, extending the boom's reach to almost nineteen feet each. Each boom is equipped with a microphone tilt hanger and Sennheiser 416's.

The main set occupies two combined sound stages at Universal. Steve describes the scene: "This is a giant show, really, for sound, sometimes we have up to fourteen actors all on wireless mics, and two Fishers to move around."

Shannon is busy wiring the cast and dealing with all the other equipment needs, and moves up to manage the second Fisher boom. Initially, the booms were hard wired to Darin, but this season they switched to a wireless configuration to avoid repeated returns to the sound cart, to stay within the COVID protocols.

Superstore incorporates a "Phase" system. Phase 1 is where camera will set up the shot and sound can move the booms in place. Phase 2 is for lighting, but often Steve and Shannon need to be there to move the Fisher base to accommodate set lighting. Phase 3 is for setting the background players, and Phase 4 is shooting.

Steve and Shannon were surprised by the crew's acceptance of the Fishers. "A lot of the younger trainees and PAs have



(Clockwise) Darin Knight's sound cart and the two Fisher booms, Steve and Shannon Cain, both booms with offset arms, monitor system, and correct PPE, Steve Cain with an 816 in a blimp, better than a fishpole and a ladder with such a heavy microphone.

never seen a Fisher boom," Steve explains, "They don't know what this is, more than half a dozen asked me if this is something I built myself. They had no concept of what this tool could do. I'd tell them, these were around before your parents were born."

During the first season, seeing Steve and Shannon perched on ladders, the crew understood the need for the Fisher booms. The AD's made the necessary compromises in placement of the Background Actors, and the Grip and Electric Departments worked to help them with their new tool. The Camera Operators were handheld in season one, then moved to dollies in the following season, making it better for Steve and Shannon on the Fishers.

The show's DP, Jay Hunter, did some sound work early in his career, so he understood their issues. He was very supportive of Darin and the crew incorporating the Fisher booms. "He's actually a fan of the Fisher as a piece of film equipment. He understands what a versatile tool it is, and how much more you can do with it than a fishpole," explains Shannon.

"The hardest part I thought was getting the booms into the right position," Steve continues, "realizing that this boom was a piece of gear that needed to be there, just like the dollies, just like the cameras. You had to claim your position and not feel awkward about telling people, you've gotta move that, as the boom has to be here."

Unique to the show are the break room scenes with as many as thirteen cast members. Shannon and Steve are

pleased at how they can cover those scenes with just the two booms. Steve said, "We have a couple of sets where we have to break it up into zones because of the size, and the way the dialog overlaps."

The show is very unpredictable with the actors ad-libbing at will. Darin established a workflow of wiring the cast, but utilizing the Fishers in every scene. The booms can be raised high enough to reach over the shelving, so they can cover several aisles at a time. Shannon has often dollied the platform so Steve can cover many 'walk and talks.'

They use two iPads, one to view the three cameras, and the second is for the script, using the Scriptation app. They have a talk-back system hooked up to foot pedals allowing them to communicate with Darin. The Fishers have proved most effective with two shots, as the actors are now at least six feet apart, although the camera angles cheat them as being much closer. "Even just two people talking, with COVID placement," explains Shannon, "then the two overs, our typical setup for two people. We started to split those up, with two booms, just to catch ad-libs."

Steve has mentored his son Shannon and speaks proudly of him, "He started with us about three years ago. I think the neat part about Shannon's training on this show is that he's learned to put mics and coordinate frequencies on the Venues, all the things that a Utility person would do. But he's also got to watch how we've done it throughout our careers with two booms, and who's covering who, telling a mixer how to set all that up. So, he has a really broad oversight of today's sound."



Above: The Model 2 arm comes in handy with so many actors spaced six feet apart. Two Fisher booms can work even small sets. Below: A typical Superstore setup: booms on each side of the center camera, with the two wing cameras (not pictured) shooting cross-coverage. A large split, no problem with two Fisher booms.

Darin uses three Lectrosonics Venues, with fourteen wireless and three IFB channels for camera, the writers and the off-set feeds, with Shannon managing all of the frequency coordination. Due to the COVID protocols, the show is now shooting six-day episodes, but has a shortened order of thirteen from the original eighteen scheduled. Many actors are now wiring themselves, requiring Shannon to show them how to place them, switch them on and off, and mount the lavalier while Steve moves the Fishers into position.

Steve and Shannon took the Local's Fisher boom training course from Production Mixer Eric Pierce, and have happily put their new skills to work on the show. They appreciate the accuracy and the versatility of the Fisher booms, as well as the safety they afford during long takes.

Local 695's "One-on-One Intensive Fisher Boom Training" program is the only one of its kind, offering hands-on training on all of the Fisher microphone booms, including the 16-foot Model 2 boom and Model 3 Base, and the Model 7 boom and Model 6E Base, which comes in lengths of twenty, twenty-three, twenty-six, and twenty-nine foot. We go through safety, transporting, prepping, setting up weights, stringing and the use of accessories, and then we guide you while you get feedback from a live mic and work through an extensive set of exercises on the boom. The training is of course, important for Boom Operators and Utility Sound Technicians but also for Production Sound Mixers who need to know what the Fisher is capable of. Unfortunately, "One-on-One Intensive Fisher Boom Training" is not available at present due to COVID restrictions but we hope to be able to bring it back to you soon.



A photograph of Bruce Arledge Jr. sitting in a control room, smiling at the camera. He is wearing a dark jacket over a black shirt and has a lanyard around his neck. In the background, there are large studio monitors, a mixing console with many faders, and a microphone on a stand.

Bruce Arledge Jr. & Boom-Trac

by **Richard Lightstone** *CAS AMPS*

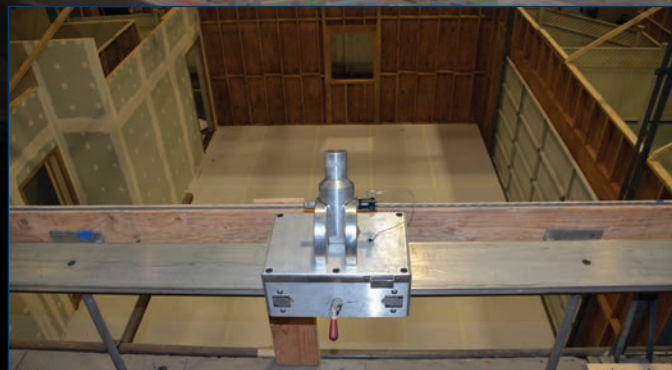
I met up with Bruce Arledge Jr., in the sound booth for *Dancing with the Stars*, via Zoom. I thought he was rolling, but Bruce said, “Oh, no, we’re just rehearsing the opening number. It’s all playback. I’ve got the faders open.”

Bruce has been on *DWTS* for sixteen seasons and is a second-generation Local 695 Sound Mixer. His dad, Bruce Arledge Sr., worked at KTLA, ABC and was one of the first freelance Audio Engineers. Some of Bruce Arledge Jr.’s credits include *Grease Live!* (2016), *Hairspray Live!* (2016), and *Rent: Live* (2019), as the Audio Supervisor.

Bruce began his career as an A-2 and then moved up to a Fisher Boom Operator on videotape shows. In those days they usually had two booms on the stage floor. When he moved on to four-camera live audience film shows, there was no room for the base of the Fisher booms. The boom arms were moved up to the green beds and were mounted on to catwalk stands by Local 80. The booms were locked in place and they no longer had the flexibility to have the A-2’s dolly the perambulator into an ideal position on the stage floor.

After Bruce put in a couple of seasons on *Family Matters* over at Warner Bros., he started tinkering on an idea to manufacture a device to allow the booms to be moved anywhere in the green beds.

Thus, Boom-Trac was born; it’s a T-bar track system that’s interconnected, and can run along the whole front of the



Boom-Trac

stage above the proscenium. It’s essentially a dolly system that sits on the track allowing the booms to move seamlessly and quietly. You can do on-air moves, while the mic faders are open. The Boom Operator can reposition and adjust angles depending on talent blocking, lighting, and shadow issues. You can move straight up and down or as high as you want allowing the opportunity to move the boom anywhere needed.

In the first year, he got his system on about four shows and it was very well received. Bruce explains, “I had great relationships with all the Boom Operators because, I too was a Boom Operator. We went from four shows, to eight shows, to thirty shows, within two seasons.”

Bruce Arledge’s Boom-Trac is a hands-on operation. “I’m still involved with every setup and strike. I handle all the clients and producers, many I’ve known for thirty years. We have shows at Warner Bros., Sony, Radford, basically wherever there is a four-camera show that needs our system, we install it.”

At the time of writing, Bruce has installs on eleven shows.



Clockwise from top left: Bruce Arledge's sound booth for *Dancing with the Stars*; Boom-Trac installed in the perms; The Calrec Apollo console



"We're just starting to get back into it. In the last few weeks, we have set up new shows and a lot of the shows that went down because of COVID, just kept their stuff up. We're picking back up right now again. We are doing all of our installs on empty stages. I just want to keep my employees safe and keep the clients safe too."

Bruce is there for every install and setup of Boom-Trac. "I'm there to make sure that everything's perfect for the twenty-six-foot boom arms." Bruce continues, "Because nobody does it as good as I would, I care about it, I'm very hands-on. I know how the device works and I want it to be perfect so when the operator steps up and has no issues."

Bruce's first live mixing experience was on *American Idol Gives Back* at the Pasadena Civic Auditorium with Elton John, the show received an Emmy nomination. The next year, he was hired for *DWTS*. "The show is two hours live. That train gets going, and there's no stopping."

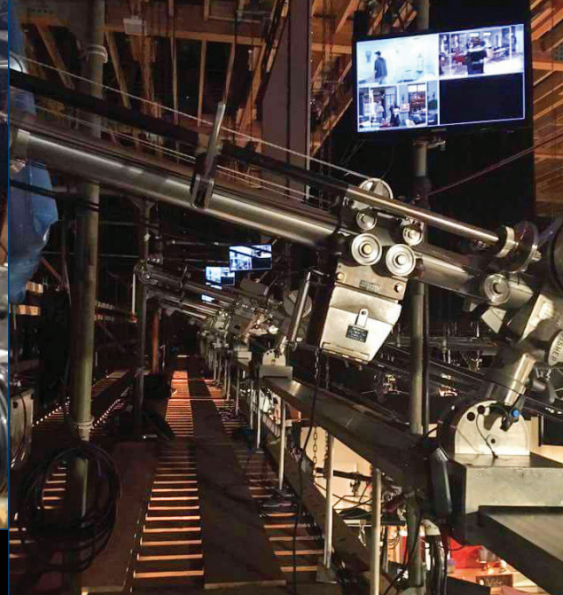
"I have fifty-five channels of RF microphones and about two hundred inputs and over three hundred outputs. It's not just a 5.1 mix that I send to the network. There is redundant Pro Tools, video tape machines, and everything is sent via fiber to edit. Each mic is isolated, so it's quite an undertaking. My book of notes is a binder so I can keep track of it all."

Bruce equates his job to that of an athlete. He is also a surfer, skateboarder, and snowboarder, so he knows from where he speaks. "I love that edge and not everybody could be in the seat that we're in." Bruce expounds, "It takes a certain type of personality, some people hate it. Some say, 'I would not do a live show.' They don't want the stress. I love that. That's when I'm at peace; when I'm sitting there looking at a rundown and it's five minutes to showtime and the only thing I gotta worry about is the page in front of me, that's calming for me."

Bruce always has a backup plan. For example, he'll have a hardwired microphone in case the RF mic dies. He also relies on his crew of five A-2's, an FOH Mixer with a Tech, and a Playback Operator. When there was a live band, there was an additional Monitor Mixer, Monitor Tech, and two more A-2's.

Currently, the show is working under COVID protocols, things have changed. Bruce explains, "In the past twenty-eight seasons, the band has been live on stage but because of the current COVID-19 situation, it has forced us to record offsite. All the dance numbers are recorded Thursdays and Fridays, with the final mix on Saturday. After the band is recorded and mixed, our Musical Director, Ray Chew, is on stage during rehearsal and the live show to make any necessary changes to the tracks. Jose Alcantar, the Pro Tools Mixer, has all the recorded stems to make that possible in real time. The completed songs are then uploaded to a server to allow all departments access. All the tracks are striped with timecode for sync for lighting cues, and SFX. The system allows us complete flexibility and consistency."

Bruce uses a Calrec Apollo console with fifty-two inputs each on the A and B side, going twelve layers deep, with enough pres and analog inputs to handle two hundred and fifty channels of audio.



Above and right: Fisher booms utilizing Boom-Trac

During the prolonged hiatus, Bruce used the time to be with his grandkids and his family. Bruce explains, “Everything slowed down. I had my second grandson and I threw myself into helping my daughter out, which I also did with my first grandson, and got to watch him three days a week. That’s what I did, and that was beautiful.”

But Bruce is very happy to be back at work and doing what he loves after his five-month layoff. Living on the edge and delivering a fabulous mix—LIVE!

The Sound Crew

Bruce Arledge Jr. – Live Production Mixer

John Protzko – FOH Mixer

David Vaughn – Playback

Doug Wingert – Audience Sweetener

Jose Alcantar – Pro Tools Mixer

Steve Anderson – Lead A-2

A-2’s

Victor Mercado

Craig Rovello

Brandon Gilbert

Robyn Gerry-Rose

System Techs

Rick Bramlet

Dave Ingels

Pre-recording Music Mixer – Randy Faustino

Monitor Mixers

Butch McKarge

Pete Kudas

Music A-2

Damon Andres



The crew for DWTS, standing L to R: Robyn Gerry-Rose, John Protzko, Doug Wingert, Rick Bramlet, Craig Rovello, David Vaughn, Victor Mercado, Brandon Gilbert. Seated L to R: Bruce Arledge Jr., Steven Anderson.

The Equipment

Production Mixing Console

Calrec Apollo

Monitoring

JBL 6328 5.1 system

Multitrack Record

Pro Tools

Sound Devices 970

Playback System

Spot-on redundant System

Desk microphones

4 - Neumann 185

Wireless units –

Provided and coordinated by

Soundtronics Wireless

45 - Lavs Sennheiser 5212 w/ Vt-500

3 - Hand mics Sennheiser SK5200

w/ DPA 4018v

Audience Reaction

Sennheiser 416’s

Neumann KM-184’s

Countrymen Isomax Hypercardiod

FOH system –

Provided by ATK (AudioTek Corp.)

Console

Digico SD-5

House PA System Line Arrays

JBL-Vertec VT

W-4 4-way Splitter

Subwoofers – JBL VTX S28

Main PA – JBL V20

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The New M1 Processor from Apple

by James Delhauer

In today's technological zeitgeist, the assembly line of advancement and progress is rarely deterred by anything. Faster processors, nicer screens, and larger storage devices are always just around the corner, ready to supersede last year's latest and greatest gizmos and gadgets. Annual releases and product refreshments are so much the norm that not even a global sickness that caused the planet to lurch into lockdown could slow the wheels of change. Few have demonstrated this as dramatically as Apple with the release of their new line of M1 Silicon processor computers. For Local 695 technicians and artists, this could be a game changer.

To understand the significance of this launch, some historical context is necessary. Many of the earliest Apple computers, beginning with 1984's Macintosh 128K, featured 16 and 32-bit processors designed by Motorola. Though revolutionary for the time, these units quickly began to show their age and Apple sales lagged compared to their primary competitor,

Microsoft. In 1991, Apple and Motorola joined with IBM to form the AIM Alliance, a group dedicated to developing the next generation of computer processors to compete with hardware being developed by Intel and AMD for Windows-based personal computers. This alliance led to the unveiling of the PowerPC processor, which Apple adopted into their identically named PowerPC line of computers beginning in 1994. These chips would remain the company's primary units in their Power Macintosh, PowerBook, iBook, iMac, and Xserve line of computers for more than a decade but they were not without their drawbacks. This hardware still struggled to meet the competition and software routinely used by Windows users was difficult to port to Apple units, limiting user options and product utility. Nonetheless, these chipsets have been credited with bringing the company out of the niche enthusiast market and into mainstream prominence, especially as Hollywood productions began to adopt them into the earliest digital post-production workflows.

However in 2006, Apple abandoned the AIM Alliance and elected to integrate more commonly used Intel-brand hardware into their computers going forward. The widely known Macbook, iMac, Mac Mini, and Mac Pro machines of the last fifteen years have all been powered by semi-customized Intel central processing units, as well as graphics processing units from Intel, Nvidia, and AMD. These computers have become so ubiquitous within the entertainment industry





GOTHAM AWARDS
WINNER
BEST ACTOR RIZ AHMED



"Supervising sound editor Nicolas Becker's work astounds, period"

Chicago Tribune

**"Understands the importance of immersing you
in this brave new noiseless world"**

Rolling Stone

**"The movie's intricate sound design, devised by Nicolas Becker,
is both an ingenious technical display and a compassionate feat of identification"**

Los Angeles Times

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Sound/Music Editor Carolina Santana



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“...it was so surprising when Apple announced that they would be abandoning Intel processors in favor of proprietary, in-house hardware beginning within the year.”

for their creative and design applications that filmmakers across the globe eagerly crave each new release from the world's first trillion-dollar company.

That is why it was so surprising when Apple announced that they would be abandoning Intel processors in favor of proprietary, in-house hardware beginning within the year. The new Apple Silicon line is derived from the same ARM architecture that has powered Apple's extensive line of mobile devices since the release of the iPod in 2001, further narrowing the ever-blurring line between phones, computers, and tablets. This allows for direct cross platform support for apps initially developed and released for iOS devices such as the iPhone and iPad, meaning users can access mobile apps and games on their home computer systems.

The first of these new proprietary processors is the M1 chip, an all-in-one processing unit that streamlines under the hood performance in a great number of ways. Traditionally, the various processing devices inside of a computer each have been segregated from one another with each possessing a dedicated memory pool to cache data during processing. An inefficiency in this system has always been the need for redundant storage of the same data—with CPU's and GPU's requiring separate caches of the same information despite working together to complete a task. By integrating both central and graphics processing units into the same chipset, Apple has removed this limitation and allowed for a shared memory pool between devices. This allows the computer to do more work with fewer resources and reduces power consumption per watt. The end result is a chipset that boasts double the performance of both the CPU and GPU, which translates to 3.9 times faster video processing and 7.1x faster image processing across the company's entire line of Mac products.

The introduction of an entirely new processing architecture presents numerous compatibility challenges from a design and engineering standpoint. In the past, it has largely been

the responsibility of software developers to program their applications with support for the various architectures available on the market. In 2006, Apple circumvented this problem with the introduction of Rosetta, a binary translator application designed to read software developed for PowerPC processors by emulating that older architecture on the newly designed Macs. For the introduction of the M1, Apple has resurrected Rosetta (now branded Rosetta 2) in order to emulate Intel's x86 architecture across their new line of ARM-based computers. The result is near universal software compatibility with applications designed prior to this migration. Though these applications will not be able to take full advantage of everything the new system has to offer until updated by their respective developers, Rosetta 2 emulation does provide users an immediate means of transitioning to the latest Apple products without the frustrations of generational incompatibility.

Additionally, the M1 chipset contains an emerging technology known as an AI accelerator, which Apple refers to as their Neural Engine. This technology has been present in the company's line of iPhone products since 2017 but the M1 variant is the first to be integrated into a personal computer platform. Designed to accelerate machine learning applications such as facial recognition and autonomous tasking, this Neural Engine boasts an incredible eleven trillion operations per second, positioning Apple to become the gold standard for the development and use of artificial intelligence applications as those technologies become more mainstream.

The response ranged from profane outrage to skepticism to tears of joy. It was just over a year ago that Apple unveiled its new line of modular and customizable Mac Pro systems. An emphasis on first-party hardware raised concerns that third-party support for these expensive machines may dwindle, punishing early adopters and potentially robbing them of their investments. Consumers old enough to remember the problematic era of the PowerPC were hesitant

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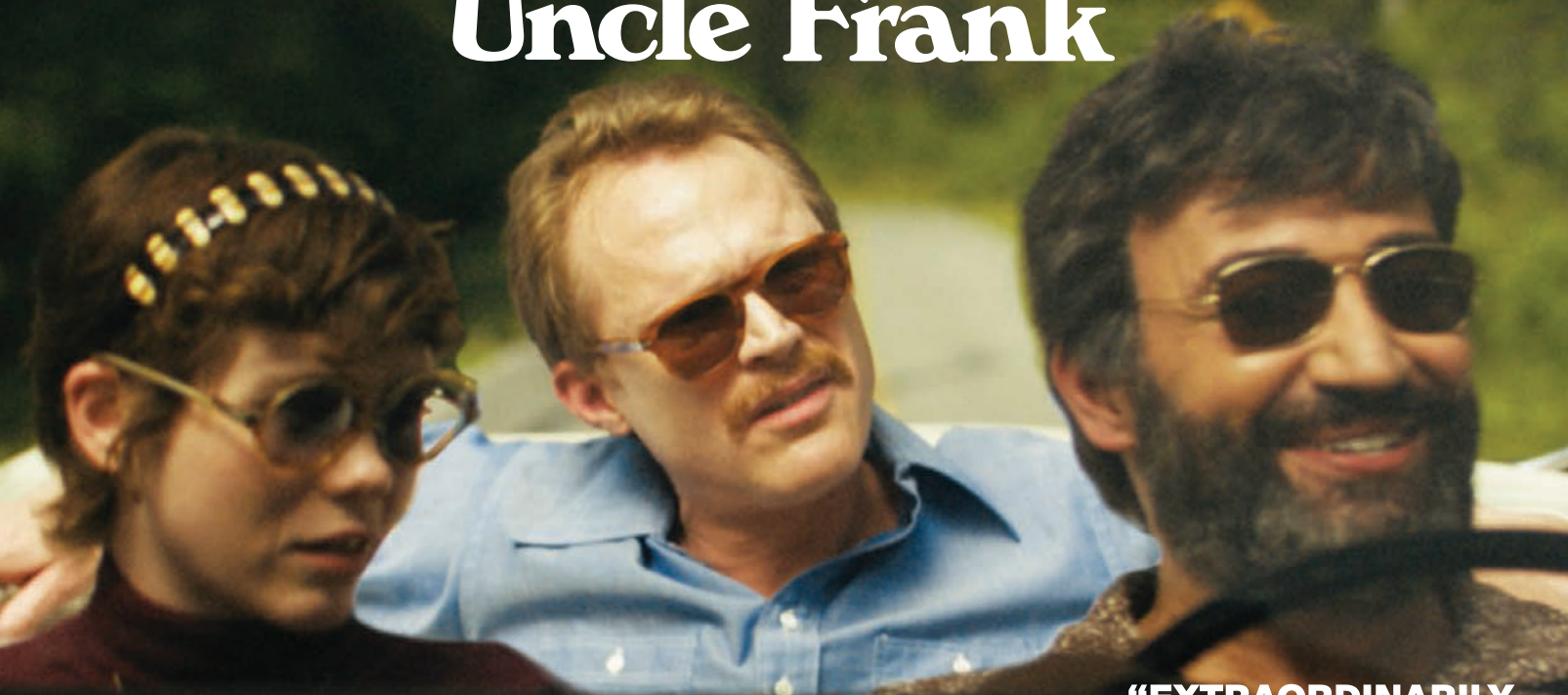
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to embrace another proprietary solution from Apple. DIY enthusiasts have decried the expected loss of personalization and customization options, a common criticism of Apple products in the last two decades. User advocacy groups such as the Hackintosh community (a group of users who seek to modify the macOS operating system in order to run on similar Intel-based Windows machines) mourned the announcement as the beginning of the end for their practice.

It should be noted that Hackintosh practices both violate the Apple-user license agreement and are not endorsed by Local 695.

But more enthusiastically, some users welcomed the announcement with open arms, citing the impressive abilities of existing ARM processor devices such as the iPad Pro and the ability to download any existing mobile device app onto a laptop or desktop.

After months of speculation, the company finally released three computers outfitted with brand-new ARM architecture chipsets: the Macbook Air, Macbook Pro 13", and the Mac Mini. All three come outfitted with an 8-core M1 processor and are configurable with either eight or sixteen gigabytes of RAM and up to two terabytes of storage. While these three lines of products are generally considered to be entry-level computers in the Apple hierarchy, the company made impressive claims as to the performance capabilities of each of these machines. The Macbook Air, widely considered to be the least powerful machine in Apple's product lineup, boasts the ability to decode and playback 8K resolution ProRes

video files in real time. Real-time 4K video editing is possible in both ARM optimized applications such as Apple's Final Cut Pro X and Intel-based programs like Adobe Premiere Pro. Similar results were achieved on the M1 Mac Mini, possibly making it one of the most affordable editing solutions out there.

But no debut is without its drawbacks. At launch, native M1 application support is largely limited to iOS applications and software developed and distributed directly by Apple, meaning third-party solutions will not perform at their best until their respective developers learn how to optimize them for both x86 and ARM architecture. At present, no third-party nonlinear editing platform or digital audio workstation has been optimized for use, meaning Avid, Adobe, and DaVinci users will have to be patient if they wish to take full advantage of their new computers. Most notably, Apple has remained silent on the future of their professional grade lines of products. The Macbook Pro 16", iMac, and Mac Pro systems continue to be manufactured using Intel-based processors, meaning power users will also have to wait before machines optimized for their needs become available.

In practical terms, the first generation of ARM products represents an exciting glimpse into the future. These entry-level machines perform far and above the performance of their pre-2020 predecessors and dramatically shift Apple's price to power ratio in favor of consumers. For low to moderate processor intensive tasks like word processing, web browsing, image processing, media management, streamlined offline editing, light transcoding, and live session recording, the Macbook Pro 13" and Mac Mini could represent a low-cost workstation solution. For more labor-intensive tasks such as high-resolution transcoding, online editing, color-correction, and audio mastering, we're going to have to see what news emerges in the coming days.

Intel-powered Macs have been a staple of our industry for nearly fifteen years. The Local 695 Audio Technician has harnessed their power to record and mix some of the industry's greatest hits using the power that they've offered. The 695 Video Engineer has recorded, played back, keyed, and transcoded everything from commercial spots to major blockbuster motion pictures with them. And while they will continue to live on in Windows-based machines, it appears that the sun is setting on the x86 architecture Mac. As it does, I believe a moment of appreciation for all that we have accomplished during this time seems appropriate... Great, now onto the new.

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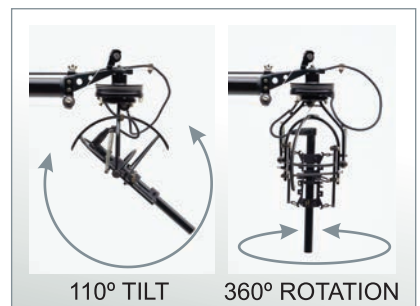
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