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VOLUME 1 ISSUE 3

695 QUARTERLY

THE OFFICIAL PUBLICATION OF IATSE LOCAL 695

695 QUARTERLY

Volume I Issue 3

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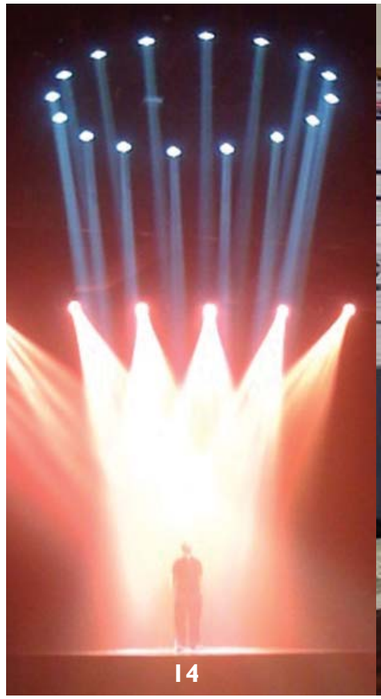
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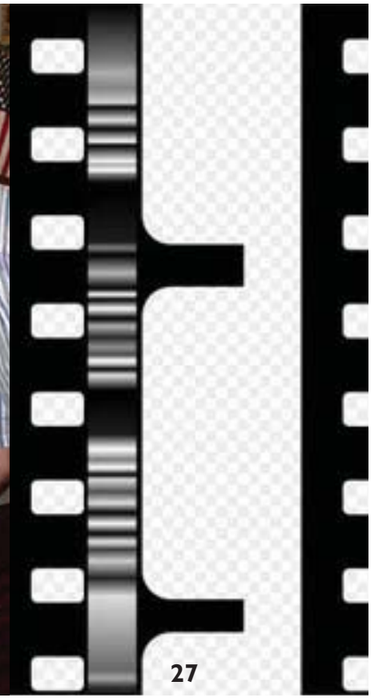
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Cover: The Quality Control bench at Denecke Inc.

From the Editors

Welcome to the fall edition of the *695 Quarterly*. We are very pleased that you, the membership, are submitting new ideas for articles. Ideas, as the expression goes, come cheap, but it is the execution of those ideas that really brings results.

We spend many hours listening at work and the *695 Quarterly* is the best place to 'talk' about our industry and the jobs we do. This periodical not only goes to the Local's membership, but also to suppliers, manufacturers and the very people who 'green light' the projects we work on.

The objective is to inform our readers of what Local 695 embodies and the individual professionalism, skills, intelligence and positive work ethic that our craftsmen deliver every day.

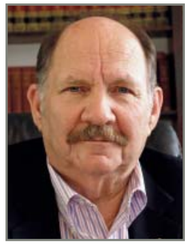
If you would like additional copies of the *695 Quarterly* to give to your producer, production manager, post supervisor or just as a hand out, please call the Local's office.

Finally, this is the time of year that our industry takes a welcome breather where we can relax, be with our friends and family and celebrate.

We wish all of you a Merry Christmas and a Happy Hanukkah and great success in the new year.

Fraternally,
David Waelder, Richard Lightstone and Eric Pierce

From the Business Representative



AMPTP: Change at the Top

The Alliance of Motion Picture and Television Producers (AMPTP) has confirmed the appointment of Carol Ann Lombardini, Esq., as its President and Chief Negotiator. She replaces J. Nicholas Counter III, Esq., who retired last March and passed away on November 6, 2009.

In response to numerous membership inquiries seeking my opinion on Ms. Lombardini's appointment, I offer the following: First, and foremost, I offer sincere congratulations and wish her success finding a consensus among the many entities that make up the multi-employer bargaining unit. Their interests and priorities often seem to be in conflict and their difficulty speaking with a single voice sometimes complicates their negotiations with us.

I've known Ms. Lombardini for 27 years since she was first working for the AMPTP. She attended the University of Chicago and obtained her law degree from Stanford University Law School. She was admitted to the State Bar of California on November 11, 1979, and in 1982, she began working for the AMPTP.

In the 27 years she has been with the AMPTP, Ms. Lombardini has been directly involved in many labor issues and negotiations with various unions. Additionally, she has served as a negotiator and trustee of our Motion Picture and Television Health Plans. Personally, I also know her as the mother of two children and as an avid Dodgers fan.

Most importantly to our labor organization, Ms. Lombardini has hands-on knowledge of the essentials of our industry. I have found her to be a careful listener, attentive to details, and sincere in her efforts to find common ground.

This is my personal observation and experience dealing with Ms. Lombardini. We don't always agree on issues but my relations with her have been less adversarial than with other employer attorneys.

It is my belief that Ms. Lombardini will make a positive mark in our industry. She is a professional woman with an awareness that neither side can prosper long at the expense of the other. She has, in my opinion, earned a chance to prove herself.

The very near future shall provide the answer.
James A. Osburn

From the President

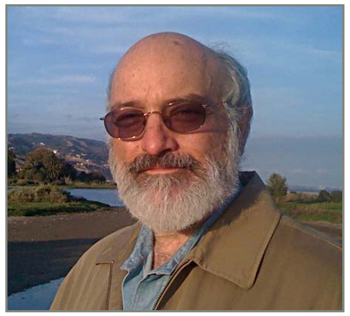
TAKING OWNERSHIP

In these challenging times, I am hearing a conversation going on among us. This is a community conversation about our relationship with Local 695 and its function in our professional lives. As a group, we seem to be moving the union more to the center of our work/employment strategies.

WE ARE TAKING OWNERSHIP

It is gratifying to see so many members taking a positive and proactive posture toward the Local and what it has to offer. This commitment to constantly reinvigorate ourselves with new knowledge and skills is wonderful to watch. We must acknowledge that this is a result of coming together and raising our level of participation in the Local's affairs. Many good things have, and continue to grow from this process, essential things, e.g., a vibrant educational program, a host of communication improvements, the website, the quarterly, the directory, additional staff and a raised level of responsiveness.

AND SO...



From this emerges a true sense of ownership. Our active voice is in play now as a community, involved in this union. I'm talking about enlightened self-interest; taking care of business, our business, our common interest.

This union is an essential piece in our tool set for protecting and promoting ourselves, and in our family's well-being. It is our professional peer organization, no one else's. Its success is a direct reflection of the level of involvement each of us has chosen to invest.

A better knowledge of the workings of the union will always better prepare us for more effective use of the tools the union provides us. This has been a better solution than being frustrated by uninformed expectations.

FOR THOSE WHO HAVEN'T YET GOTTEN INVOLVED:

How many hours do we spend learning a new piece of gear? As a community, we can apply that same principal to the care and maintenance of our Local. More of us do need to read the manual. Isn't this knowledge just as, if not more important to our professional survival? When we are absent from the process, we can't avoid getting something different than what is silently in our heads.

The union is literally our agent. It is you and I taking policy positions, as a group, to advance our common interests and defending those interests when a company isn't living up to the agreements it has made with us.

Being familiar with how the union functions, and our part in it, can save so much anxiety about where we fit into the picture. This can't happen if we haven't read the manual, know how to use it and build the human relationships with the people who work hard at helping us, work hard at upholding the contracts made in our name. These relationships and our participation, ultimately, have a direct bearing on what is in those contracts. Our members know this and have acted accordingly. That is why this Local is on the move.

Fraternally,
Mark Ulano
President I.A.T.S.E. Local 695

695 QUARTERLY

I.A.T.S.E. Local 695
Production Sound Technicians,
Television Engineers,
Video Assist Technicians and
Studio Projectionists
Certified & Chartered September 15, 1930
A California Nonprofit Labor Corporation
Incorporated July 31, 1951, State of California
Affiliated with the A.F.L.-C.I.O.,
California State Federation of Labor,
and L.A. Central Labor Council

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NEWS & ANNOUNCEMENTS

Introducing Dean Striepeke

We are pleased to announce the addition of Dean R. Striepeke to our Administrative Contract Compliance Task Force, employed part time as a Special Representative. In addition to being an Executive Board member of the Local, Dean is a Y-4 TV engineer and twenty-year member, having specific hands-on experience in all aspects of our traditional established jurisdiction and work assignments, performing off-camera production audio/video electronic, industry recording.

New MPTF Health Center

The Motion Picture and Television Fund has opened its seventh health center in Glendale, California. Tony Lin, M.D. from the Toluca Lake Health Center, will be temporarily staffing the facility until January 4, 2010, when Richard J. Kim, M.D. will become the permanent medical provider at the new facility.

Dr. Kim is Board Certified in Family Practice Medicine and comes from the Mayo Clinic Arizona Centers in Glendale, Arizona.

The Glendale Health Center is located at:
800 South Central Avenue, Suite 305 • Glendale, CA 91204 • 818 876-4790

The Sound Girls Brunch

Front row, L-R: Tula Snoeck, Christine Huynh, Elizabeth Alvarez, Sara Glaser Evans, Patrushkha Mierzwa, Carrie Sheldon, Susie Moore-Chong, CAS, Sarah Yount, Kim Podzimek, Rosa Tyabji. Back row, L-R: Jessica Bender, Lydia Hollyfield, Theresa Radka, Kim Petty, Tanya Peel, Linda Murphy, Alexandra Gallo, Lisa Pinero, CAS, Mary Jo Devenney, Shawn Holden, CAS, Alenka Pavlin, Anna Delanzo, Peggy Names, Rocky Quiroz, Lisa Gillespie, Sunny Meyer, CAS, Tove Blue Hoch, and Victoria Thoma Bowes. Not pictured: Cabell Smith, CAS, & Elyse Pecora.

Peggy Names and Shawn Holden hosted a brunch for a gathering of "Women in Sound" on November 15, christening the event: "The First Ever Sound Girls Brunch."

Peggy told us: "When I began working in production sound in the mid-'70s, I knew of only a handful of women that were working in the same field. Women were a rarity in such a technical arena."

In recent years, Peggy noticed she was being contacted by more and more women who were getting into Local 695 and working in production sound, so she and Shawn came up with the idea to bring a group of women together to share stories and relate their experiences. Thirty women attended the brunch, with many others expressing interest, but unable to attend. Peggy sums it up this way: "I'm totally blown away by, first off, how many women are now busy in production sound, and second, the enthusiasm of the responses and thirdly, what an awesome group of women we all are. After 30-plus years of hanging out with guys, now I have some girlfriends!"

Look for the Sound Girls Brunch to become an annual event.

2010 Membership Directory

2010 is almost here, so now's the time to make sure the information we publish is up to date. Any previously entered information will still be in the database, so there is no need to enter it again; unless you wish to update it.

The easiest way to enter or update your information is at www.695.com. Click on "Membership Directory," then on "Click to UPDATE Your Directory Listing."

In Memoriam

JULES "RINGO" STRASSER III
Boom Operator
June 9, 1943 - Oct. 28, 2009

STEPHEN GREGORY JOHNSON
Utility Sound Technician
Dec. 8, 1958 - Sept. 11, 2009

DONALD F. JOHNSON
Mixer
July 22, 1936 - Sept. 1, 2009

RICHARD H. NELSON
Projectionist
April 15, 1933 - May 11, 2009

TED WASSERMAN
Service Recorder
March 25, 1915 - April 5, 2009

GEORGE RONCONI
Mixer
Dec. 20, 1925 - March 8, 2009

We wish to express our condolences to Business Representative Jim Osburn on the passing of his mother, Lois Lee Cole-Thulman, on Nov. 16, 2009.

Local 695 would like to congratulate the 2009 Emmy award-winning production sound teams*

OUTSTANDING SOUND MIXING OR A COMEDY OR DRAMA SERIES (One Hour)

House • "House Divided" • FOX • Universal Media Studios in association with Heel and Toe Films, Shore Z Productions and Bad Hat Harry Productions
Von Varga, Juan Cisneros, Ken Strain

OUTSTANDING SOUND MIXING FOR A MINISERIES OR A MOVIE

Generation Kill • "The Cradle of Civilization" • HBO • Company Pictures and Blown Deadline Productions in association with HBO Films
Colin Nicolson

OUTSTANDING SOUND MIXING FOR A COMEDY OR DRAMA SERIES (Half-Hour) **AND ANIMATION**

Entourage • "Pie" • HBO • Leverage and Closest to the Hole Productions in association with HBO Entertainment
Tom Stasinis, CAS, Debbie Pinthus, Tom Curley

Weeds • "Three Coolers" • Showtime • Showtime Presents in association with Lionsgate Television and Tilted Productions, Inc.
Jon Ailetcher, CAS, Dave Hadder, Fred Johnston

OUTSTANDING SOUND MIXING FOR A VARIETY OR MUSIC SERIES OR SPECIAL

The 81st Annual Academy Awards • ABC • Academy of Motion Picture Arts and Sciences
Ed Greene, CAS, Dan Wallin, Robert Douglass, **Patrick Baltzell, CAS, Pablo Munguia, Mike Parker, Debbie Fecteau, Jeffrey Fecteau, Jim Ridgley, Ric Teller, Juan Pablo Velasco, Mark Weber, Toby Foster, Mike Cooper, Steve Anderson**, Michael Aarvold, **Larry Reed, Alex Guessard, Tom Pesa, Hugh Healy**

The 51st Annual Grammy Awards • CBS • John Cossette Productions in association with AEG Ehrlich Venture
Tom Holmes, Eric Johnston, Mikael Stewart, **Ron Reaves, John Harris**, Eric Schilling, **Michael Parker, Tom Pesa, Bob LaMasney, Michael Abbott, Rick Bramlette, Jeff Peterson, Andrew Fletcher, Barry Warrick, Andre Arango, John Bell, Billy McCarge**, Dave Rickmears, **JP Velasco, Pablo Munguia, Steven Anderson, Craig Rovello, Bill Kappelman, Peter San Filipo, Ric Teller, Damon Andres, Eddie McKarge, Paul Chapman, Dennis Mays, Bruce Arledge, Michael Faustino, Kirk Donovan**, Dave Bellamy, Grant Greene, Rod Sigmound, **John Arenas, Matt Campisi, Jim Fay, Thomas Ryden, Hugh Healy**, Peter Gary, Max Feldman, Hardi Kamsani, Anthony Lalumia, Charles Campbell, Rocky Graham, Gary Epstein, Mike Babbitt

OUTSTANDING SOUND MIXING FOR NONFICTION PROGRAMMING

102 Minutes That Changed America • HISTORY • Produced by Siskel/Jacobs Productions for History

*Local 695 members are in **bold**.

EDUCATION & TRAINING

by LAURENCE B. ABRAMS

HD + Long Takes =
Another Trip to the Chiropractor?

The sound crew most often chooses from these tools … a mic mounted on a fishpole, a fixed "plant mic" hidden someplace within the scene or a wireless mic buried beneath the actor's wardrobe. Each has its strength and its fallibility. A super-wide camera shot might preclude use of a fishpole … a bathing suit might nix the RF mic … and actors who walk around the set might rule out a stationary plant mic. By continuing to offer our **"Fisher Boom: One-on-One Intensive"** training sessions for the Fisher Microphone Boom Dolly, we draw attention to the original and traditional safer option that gave rise to those tricks and tools mentioned above. The most obvious benefit of using a "Fisher" is in its suitability for extremely long takes when working with HD, averting the health and safety issues that arise while using a fishpole for takes that can run four minutes to as long as 45 minutes or more in length. (People always ask… "Doesn't that hurt your back?" The answer is simple. "Yes.") But don't overlook the additional advantages of working with a microphone that can articulate through a 110-degree range and cue a full 360 degrees, greatly exceeding the tracking ability of a fishpole mic locked into a fixed-angle shock mount. Better sound … healthier vertebrae … everybody wins. Visit **www.695.com/mbr/edu.html** for further details or email **edu@695.com** to schedule an appointment for one-on-one Fisher Microphone Boom training. We extend special thanks to J.L. Fisher, Inc. for making their booms and the "boom room" readily available to us for this continuous series of special training sessions.

Fisher
model 7-6E

Additional training resources and information can be found at **www.695.com/mbr/edu.html**

Online Software Tutorials

Local 695 members continue to have free access to VTC's vast collection of almost 800 online software training tutorials. Some examples of available tutorials are Apple Final Cut Pro, Adobe Premiere, Adobe After Effects, Adobe Flash, Macromedia Director, Adobe Photoshop, DigiDesign Pro Tools, Apple Logic, Sony Vegas, Sony Sound Forge, Apple Soundbooth, FL Studio, Digital Performer and much more. Besides these sound- and video-related programs, you can also access tutorials pertaining to website design, page layout, networking, game design, Apple and Microsoft and Linux operating systems, accounting software, office suites, database design, programming and more, with new tutorials being added frequently. Did we mention it's free for Local 695 members? These tutorials run in length from three hours to as long as 99 hours, presented in five- to 15-minute chapters, making it easy to progress at your own pace and to review chapters as needed.

If you haven't already received a username and password, send an email request to **info@695.com** or call Leslie at the office at 818 985-9204. For details and a complete list of all available tutorials, see **http://www.695.com/mbr/edu-vtc.html**

Online Streaming Videos

The Local 695 website has a collection of streaming videos from past training sessions, including last summer's "RF Day" event, featuring "RF and What the Digital TV Transition Means for Radio Mic Users," presented by Tim Holly and "Zax-net and Encrypted Digital IFB Monitor Receivers," presented by Glenn Sanders.
See them all online at **http://www.695.com/html/edu-stream.html**

THE NEW Production Tracking DATABASE

by Laurence B. Abrams

Earlier this year, the Local began a project to update the system used for tracking ongoing productions. The design parameters, developed by Local 695 Special Representative Scott Bernard and Local 695 Vice President Jay Patterson, were ambitious…

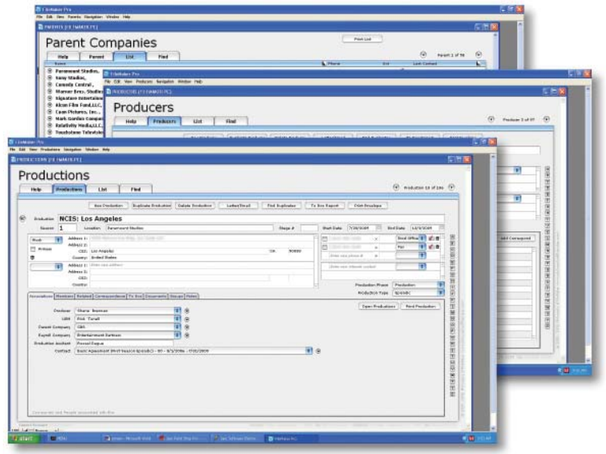
- To build a comprehensive database capable of tracking all current productions within our jurisdiction and archiving for future reference,
- Within the database, store copies of all available contracts with cross-reference to applicable productions, allowing instant access to any production's governing contracts,
- Store data pertaining specifically to production companies, producers and UPMs involved in all current projects so that it can be easily cross-referenced against prior production history,
- Quickly identify sources of problems of direct concern to our members, such as a history of late payments, persistent contract violations, etc.,
- Provide the International with a record of non-union activity so that they can organize those productions and create more union jobs.

In describing the development process, Scott explains that "we first met with several other Locals and watched demos of their production tracking systems, and then we sat down to outline a custom database application that would serve the unique needs of Local 695 while remaining powerful, flexible and expandable."

After more than 10 months of design, development and testing, the Local's new Production Tracking Database is now fully operational. "Quite frankly," says Jay, "this database has met and exceeded our expectations. New data is being added daily and it is already producing solid results for the Local. And the more data we add to it, the more powerful the system becomes."

Why do we need all this information?

Quite simply, it helps us to better protect the work opportunities of the membership. With an accurate database, we can track production activity in real time and keep a close watch on the



productions. We can address questions or issues you might have involving a particular producer or UPM by pulling up their history and reviewing any correspondence or notes or past grievances that may directly pertain to your situation. Besides being required by our Constitution and Bylaws that you report your jobs to the Local, Scott points out that "It comes down to this … the more information we have, the more prepared we are when we address contract violations interfering with the members' contractual rights … and having this information instantly available to the office makes a huge difference in protecting the members' working terms and conditions."

Where do we get the information to input into the system?

The great value of a database is that it is capable of organizing large quantities of information that arrives from a variety of sources. For us, it begins every Friday when the Local receives an email from the International containing all the contracts, memoranda of agreements and project agreements that have been signed during the prior week. The PDF contracts are added directly into the database, greatly speeding up the process of locating contract information pertaining to wages and conditions on any given show.

You make the difference.

In addition to the contracts, we also review the trade publications and production reports for any production data we can find, but the very best information we get comes directly from you, the members, providing us with a steady flow of critical details about ongoing productions. Here are ways you can submit that information and help build a more effective database…

- **Online:** Go to **www.695.com** and then on the Home Page, click the link for the "Production Tracking Database" and fill out the quick form.
- **Email:** Include your name, production title, producing company, payroll company, start and end dates, your crew, stages you will be shooting on, types of cameras they're using, other notes you'd like to include … and email to **edu@695.com**.
- **Phone:** Call the office at **818 985-9204**.

NOTE: In addition to the above, it is especially helpful if you can send us a call sheet, as well. Either email the PDF file to **info@695.com** or fax the hard copy to **818 760-4681**.

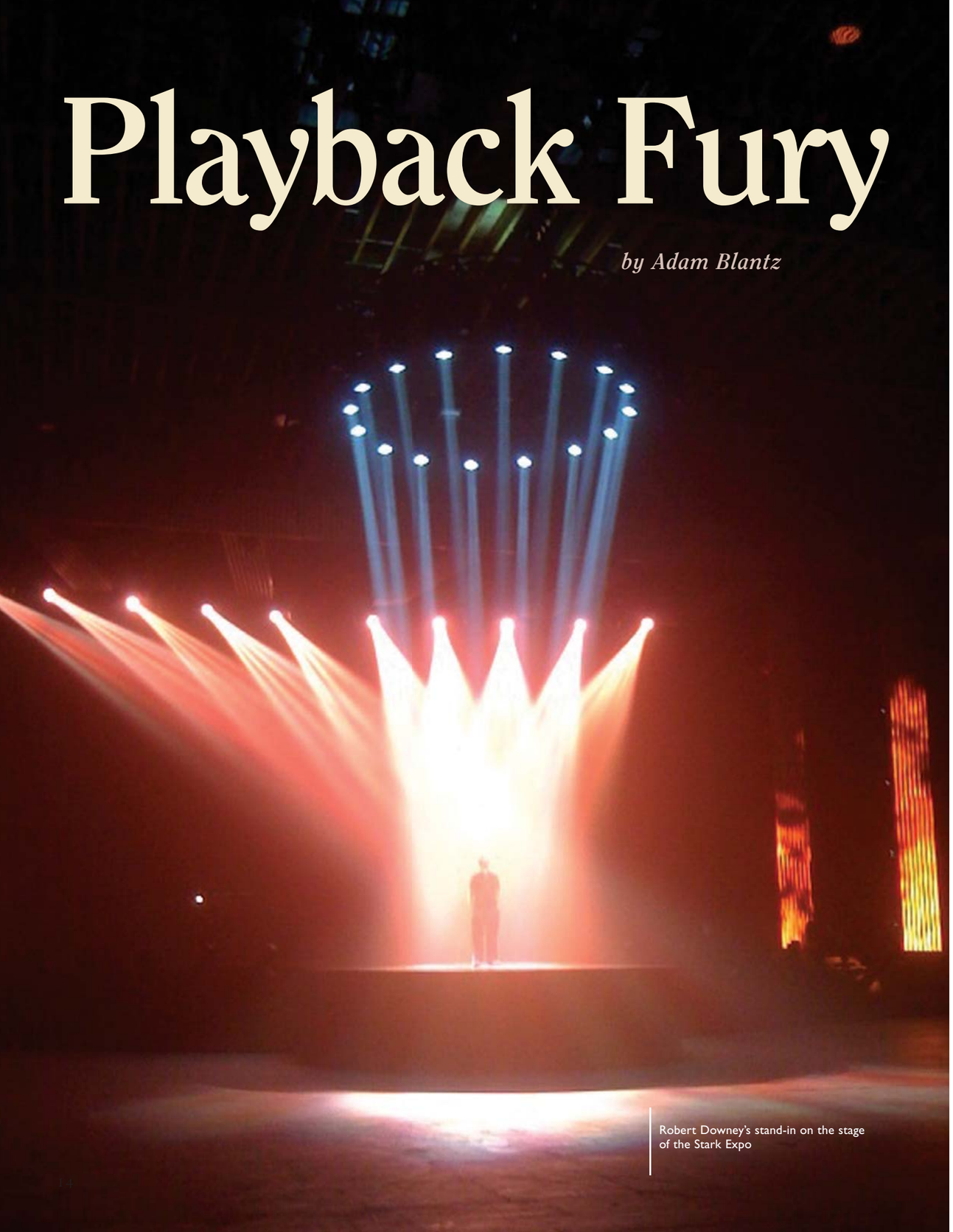
Which jobs should you submit to the Database?

You should submit information for all jobs that you work on—union shows as well as for non-union shows. Day calls and weekly calls as well as for long-term assignments. This includes commercials, music videos, webisodes, ENG, reality, whatever. All jobs should … and must … be reported to the Local in accordance with lawful and constitutional requirement.

Business Representative James Osburn points out that "the new Production Tracking Database has already provided us with great information and has proved in more than one instance that instant access to this data helps us resolve issues for our members more quickly and effectively." We will continue to look for ways to build upon this system, to expand its features and to find new opportunities to utilize it to further enhance the services we provide the membership. But your help is needed. Whether by phone, fax, website or email, please be sure to report <u>all</u> of your jobs to the Local.

Playback Fury

by Adam Blantz



Robert Downey's stand-in on the stage of the Stark Expo

The rumor mill had started. We were going to have AC/DC play at our big Expo scene on the set of *Iron Man 2*. As a musician, definitely a dream come true. As a production sound man, it could be your worst nightmare! What if the suits say, "We want you to record them live," what then? "No, we can't afford all their guys. We'll just need to record one song. You can do it. We trust you."

THE SETUP

Production had told us nothing. But we had to be ready for any possibility. Jesse Kaplan came in to cover my utility position and I upgraded for the task.

TIME CODE

The dimmer board guru, Scotty Barnes, was the one to tell us, "We are going to need a TC feed to drive all our show." It seems even *Iron Man* found AC/DC a hard act to follow. We were now having dancers to playback of an undisclosed AC/DC song. OK. Straight forward enough. Mono music on the left channel and TC on the right. But in the scene, Tony Stark (Robert Downey Jr.) might talk while the dancers were dancing. On top of that, there is a video playback of Howard Stark (Father to Downey's character) on an LCD screen as big as an IMAX behind him. Obviously, we would need a thumper and earwig on the day. OK, now I would need more than two outputs, so my Mbox (Pro Tools) would not cut it due to its two-output limitation. I use a Motu Microexpress to get TC out of Pro Tools LE. I played with a Denecke GR-1 on the Micro Express' SMPTE output and set up clockworks, which is the Motu software. I set up all the parameters. The midi indicator lights on the micro express were on when I played back and stopped when I hit stop. But no TC was coming out! I called the guy who taught me how to do TC with Pro Tools LE in the first place: Tom Stasinis. He mixes HBO's *Entourage*, so you can expect him to be quite busy, but he spent the time, remembering how to do it himself, and… How did I miss it? You have to hit the clock in the transport menu! You do the same when recording TC on PT. I felt like an idiot. Now I was ready to go small or so I thought.

Adam Blantz

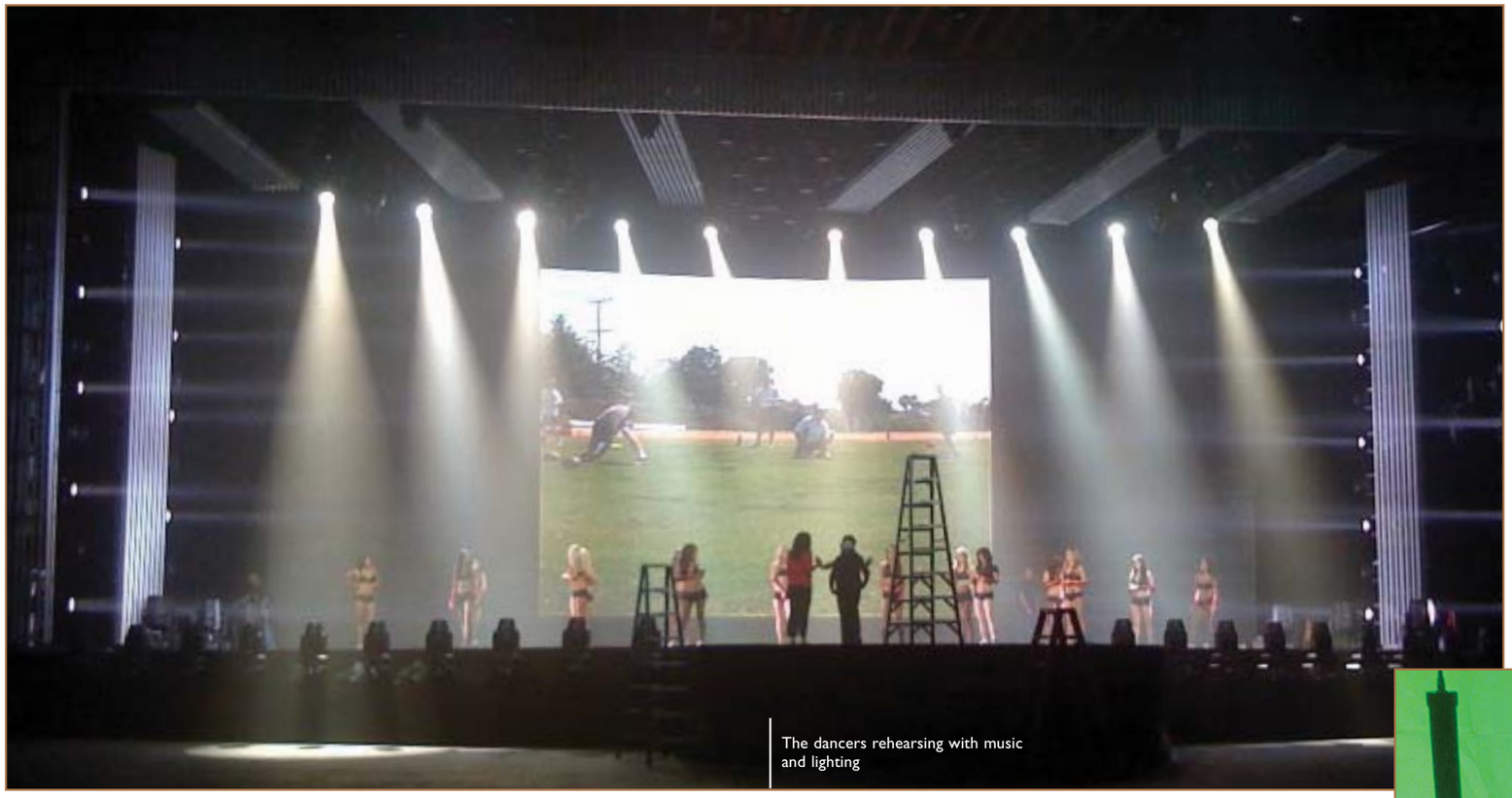
THE EARWIG

We already had the earwig station for the most part built. Robert Downey Jr. uses earwigs occasionally for cueing. He uses it enough that the company bought a multi-freq Phonak earwig, a Comtek BST-216, and a whole bunch of batteries for it before the show began. We give the director (or whoever is reading), a Lectrosonics um411 transmitter with a Push-To-Talk (PTT), wired with ta5f connectors, to service a cheap lav so he could take it mobile along with a 216 receiver on the same channel as the earwig. We also offered a Beyer boom mic headset, also with PTT, hardwired, in case he wanted to have better fidelity. (This came in handy when the wireless rig suddenly went down. We switched to the hardline and by the next setup, our dayplaying third, James Eric, had found the bad cold solder on the PTT and fixed it.) We put our no. 4 unit on the venue, Blk 22, on Robert Downey Jr. for the sound mixer's (Mark Ulano) public track, and also set up a standalone 411 receiver on the same frequency, for the earwig cart. This way director Jon Favreau (or whoever was reading) could hear Robert while we kept it silent to the floor. They would need to rehearse privately. They would also need to hear the other actors, so we also put a public Comtek receiver on the next channel of the board. Quite over the top I know, but this let us cover every eventuality. Robert would also need to potentially hear the audio associated with the video playback or hear the song while the dancers were dancing to the thump track. These feeds to the earwig cart would obviously have to come from a prefade aux out of the PB board if we were to go to the thumper or if he talked to the huge video screen showing his dead dad.

THE THUMPER

There aren't thumpers everywhere; there are probably only about 10 in existence worldwide. How the metronome supplied to trigger the thumper controller can be used in a real-world situation, aside from a workout video, always puzzles me. Half of them have a different tone every fourth beat that makes the thumper behave erratically. Creating a thump track is the only sure way to avoid drift.

First, you need your thump. Create the lowest frequency you can, using a drum machine or synthesizer. I used a Mac-based synth called Spongefork and did it all in the box. This needs to be edited for duration. I use Pro Tools but any advanced audio software can do this. Then you need to round your edges with a small fade in/out or the pencil tool because a very short edited chunk resembles a square wave. Those sharp edges create a pop that is way above the 50 Hz you are gunning for. EQ out anything above 50 Hz and compress it to get a consistent high gain. For songs with a lot of feel/tempo changes, it is sometimes better to hook up and play (if you got da' riddem) a drum machine. It's tough to get consistent



The dancers rehearsing with music and lighting

amplitude with touch-sensitive drum machines, and (even if you got da' riddem), you will still have to nudge some beats, apply the EQ and compression, as well as a gate if your sample decays too long. If you decide to use the thump you created (instead of the drum-machine method), and you have a song with a strong beat, then it's better to find where the main beat starts and cut in the intro beats after you have the main rhythm assembled. This can take some time, but once done, you have a very dependable thump.

POWER

This leads me to the biggest pain of any large setup: AC. Talk to 728 and see if they can run power from a dedicated lunchbox to all your peripherals. Even if all your gear is on the same power, you will still invariably have some ground hum or in our case, EMF buzz, so keep lots of ground lifters and Sescom IL-19s around. Two IL-19s are the best 150 bucks you will ever spend. If you check out the wiring diagram of our setup, you'll notice that I had to add one between the Front of House Cart (FOH) and my input from Mark Ulano, the mixer.

The FOH contains all our radio mics, Comtek base stations and antennas. This connects via Cat-5 to the trailer outside with the mixer and his Chinhda/Main cart. I needed to get a feed of all the mics that need to be recorded and amplified back from Mark as well as feed him (pre-fader) the PB material (the AC/DC song and Howard Starks words). Signals were clean at first but then we had to move the FOH. When we plugged back in, even though we were on the same power as before, we had a new buzz! The IL-19 came through. Even when all your stuff, including video assist, is on the same leg, when you get a buzz, it's tough to find the culprit. Jay Huntoon and Paul Murphy (video assist) were plugged into four film and three video cameras with Technocranes. Even the powered scissor lifts might have been the culprit. We got rid of the 60 Hz ground buzz but the speakers had a low pulsing sound like a didgeridoo that continued even when nothing was plugged into them! We think it was the EMF from the versa tubes and the LED screen. Fortunately, it was drowned-out by the hundreds of robot lights.

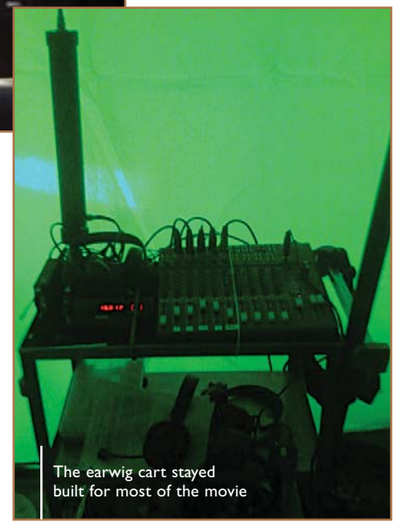
PLAYBACK

We have two Mackie SRM-450s that have filled up plenty of high school football fields, but we were to have 500 extras and were worried they would soak up a lot, so, from deep storage, Mark brought in his 1400 watt amp, powering two Klipsch bottom ends with a Renkus-Heinz horn top ends. I wanted separate control over these as I was using them to fill in the back of the room and wanted feedback control. I fed them with post fader aux 2. This helped when Jon Favreau said he didn't want a stick mic or headset mic on Robert (I had told him about the feedback potential). He wanted a regular lav rig and being able to have that balance control helped out. Later he even asked us to make it feedback!

OK, now I had TC, thump, earwig, power, and amplification worked out.

VIDEO PLAYBACK

The video feed to the huge LED screen was to come from the dimmer boards personal computer connected to the dimmer board, much to the horror of Matt Morrissey, our 24-frame brother. The Mbox Video/Dimmer interface wasn't outputting any audio. In fact, the whole setup would crash if audio were tied to the video files. Whose idea was that! We briefly thought of importing the audio into my PT session. Its TC was driving their show anyway. But no one knew the timing (or anything else) of the scene, and double system is a can of worms we could live without. We lucked out the next day when the tech from PRG, the company providing the Mbox, showed up and said, "Oh yeah, it's running beta software. If you type in 'audio' at the tail of the file name, it will play audio. It's not in the manual yet."



The earwig cart stayed built for most of the movie

But yet another opportunity to excel presented itself. The audio output was an unbalanced computer headphone out. Obviously, another magic box was needed to balance this feed. We tried a digital matchbox but it did nothing to kill the hideous caterwaul. The Crab (another impedance matching interface) with its hum switch worked though. But now the files from post loaded into the Mbox, were two frames out of sync and the whole Mbox computer processing created an additional two frames of latency. Thank the Lord, Matt Morrissey had seen this coming and brought a Rane AVA22d, which was already set up for frames and fields. Very handy, as the many different revisions and edits that they received over the next three days all required a little different tweak to get them to sync up. I have to say that I was VERY impressed by the ability of the 24-frame guys to interface with the 728 boys, On the fly, with very little parental supervision, they created multiple cuts of their Video PB, and pulled it off smoothly.

CURVE BALLS

Now the hardware was working the way I wanted it. But when I said AC was the hardest part of a large PB operation, I wasn't factoring in the human curveballs. Production came up to me the Thursday before we were to shoot and said that they would need us to work on the July Fourth three-day weekend! Thank the Lord, Jesse Kaplan was able to cover for me. He was able to juggle his weekend and picked it all up quickly as he is very Mac-savvy. Thank you Jesse. Of course, during the weekend before we were to shoot, three alternate edits of the song were sent to 728 but not to us! One of the big strengths of using PT as a PB medium is being able to quickly react to these inevitable changes.

On the day, there were additional flies in the ointment. The techno operators and pyro guys (did I mention the pyro?) needed a clean feed of only the music, as they were basing their cues off a particular point in the lyrics. They couldn't hear the lyrics over the 500 screaming extras (not that it's easy to understand the lyrics under normal circumstances). Mark just tweaked his aux1 public mix feed to the Comtek so the pyro guys could be included as well.

The ending beats are in triplets as well as slowing down and the dancers were having a tough time hitting them. Jon and Janine, the choreographer, came up to ask if I could cut in clicks for the last two bars to help the girls. "Sure. But the straight clicks against the triplets, both slowing down, might throw them further." Then another choreographer asked if I could cut in a last accent after the last beat to give them a landing point. "Easy, but when you cut in the song, that accent won't be there and they will finish up in the Ether." They finally decided they just needed to practice it and do it right. I put the last 20 seconds on a loop and drove the crew nuts! Good fun.

HAPPY ENDING

We got through the shoot unscathed. The old adage, "They don't know what we do," was never more true. Being a sound guy is like playing bass. Most people never notice you unless you screw up. I'm OK with that.

Adam Blantz mixed his first movie in 1985 and (except for a year teaching high school in Guatemala), has been doing sync sound ever since. He worked at Northstar Media, as a transfer technician and projectionist, for two years, and then worked on the sales floor at ASC (now LSC) for two years. He's been a member of Local 695 since 1998 and presently lives near Channel Islands Harbor with his wife, two kids, a dog and a cat.

Mike Denecke: Da ncing in the Moonlight

by Richard Lightstone and David Waelder

"Father Time"; note the bar code collar.

In 1986 when I handed a Denecke TS-1 Time Code slate to a camera assistant I was asked, "Why do we need a slate from the sound department?" Twenty-three years later, we are expected to provide a time code slate on every job.

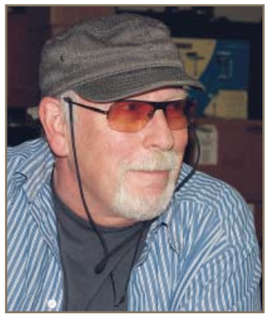
The credit for the Denecke slate goes to the late Michael Denecke, production sound mixer, engineer, musician and member of Local 695. Over a 40-year span, we have witnessed huge changes in the tools we use to mix sound; analog tape and the Nagra Recorder were pushed aside by the move to digital recording. The DAT Recorder was replaced by the current file-based recording systems in use today. Throughout all this incredible technological march, the time code slate has been the one constant that has survived and helped to push that new technology.

"The Denecke Time Code slate is probably the most photographed object in the world..." **–PETER WEIBEL**

It's ironic that the man responsible for this ubiquitous film icon was himself so modest and content to operate in the background. A self-taught engineer, Mike followed a singular path to his role as "Father Time."

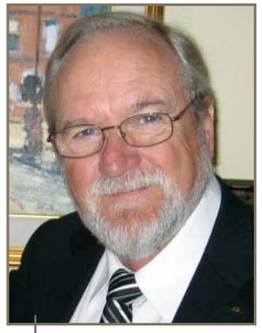
He came from a musical family and was educated as a musician. He played lute and guitar and trained with classical guitarists Andrés Segovia and Julian Bream. He loved to play and record music and became involved in film sound as an outgrowth of this activity. In the late '60s, Mike worked with the Nitty Gritty Dirt Band. He also worked for Les Konig, jazz musician and record producer at Contemporary Records and probably got into recording then.

Michael Denecke, enjoying work



From left to right: Peter Weibel, Charles Parra and Chinhda Khommarath

A Cine-Sync K-2 to link KEM editing machines. Denecke made and sold about 400 of these boxes.



Manfred Klemme

Peter Weibel remembers: "I first met Mike in early 1970 at Terry Walker's Sound Services where Mike was fixing a Magnasync/Moviola Recorder. I had just arrived in Los Angeles to introduce the KEM flatbed editing products. A customer cutting the Woodstock film had a problem with one of the KEM amplifiers and I got Mike Denecke to take a look at it and he fixed it without ever seeing one before."

Mike had a recital at the Brand Auditorium in Burbank in 1972 and left the next day for France. While in Paris, he participated in the recording of "Dancing in the Moonlight" with the King Harvest Band, which reached no. 13 in the *Billboard Hot 100*. The year he spent in Paris was pivotal for him because, on his return, he sold his lute and bought an oscilloscope. Chinhda Khommarath, who teamed with Mike as a boom operator on commercials and fabricated prototypes for his products, says the oscilloscope was "just another instrument for Michael."

Although he continued to accept assignments recording commercials and was the mixer on John Cassavetes' film, *A Woman Under the Influence* (1974), by 1975 Denecke had moved firmly to the engineering side of the business. He was a partner in a company providing dubbing machines and was already engaged in creative engineering solutions for the business.

Around this time, Peter Weibel had requests to link KEM editing machines together for clients with a need to see multiple screens. This originated with *Woodstock* and expanded with the 360º CircleVision films made by Disney. Mike had already made an electronic footage and frame counter for the KEM that could control the transport so Peter turned to him for a solution. Mike designed a bi-phase circuit that held multiple machines in sync. This was the beginning of the Cine-Sync line of products that are still available today. Keller Electronic in Germany later tried to make a linking circuit but theirs never achieved the reliability of Mike's elegant design. In 1986, Mike incorporated Denecke Inc.

Recognizing the potential of time code, Manfred Klemme, West Coast Nagra representative, encouraged Kudelski to make a recorder incorporating the code. In 1984, after little progress, they suddenly, and without warning, shipped him 31 time code recorders. With no clearly defined path to use the data generated by the machine, Manfred worried about how he might sell them.

Time code assigns a unique number to each image frame. The potential of the code is easy to grasp but mechanical requirements inhibited its use in film production. In use since 1967, it was confined to video production because, although the code could readily be recorded on tape, there was no easy way to imprint it on film. Ivan Kruglak, CEO of Coherent Communications, reasoned that it was not necessary to record code continuously on the film if an accurate record could be made at a single point. Since crystal-controlled motors run the cameras at a constant speed, accurate

code could be extrapolated for any frame if one knew the correct code at any point in a take. This could be accomplished by photographing a display of running code and it was the breakthrough idea that enabled the use of time code for motion picture production. Kruglak was the first to make a practical slate for production use but his product, the TC-400A, while capable, was large, complex and expensive. It was too unwieldy for regular production use and Manfred was stepping around boxes of unsold time code Nagras in his shop.

Michael Denecke and Charles Parra at Showbiz Expo L.A., 1992

Manfred approached Mike Denecke about the problem and suggested that he make a larger display of the time code reader that Mike was making for the KEM, effectively converting it into a slate. Mike asked how many slates he might sell and Manfred replied, "About a hundred of them." Mike said, in that case, he'd do it. (More than 5,000 slates have been sold to date.)

Along with Peter Weibel and Ivan Kruglak, Mike served on the SMPTE Time Code Committee developing standards for time code application so he was well aware of what was required. In consultation with Peter and with Manfred, they decided on freezing the code on closure of the sticks and holding the display for four frames before switching over to user bits. Applying his knowledge of production requirements, Mike fashioned the slate with an undercut below the sticks so a camera assistant could operate it with one hand. His smaller, lighter slate was an immediate success. Office manager Spike Dolomite soon dubbed him "Father Time" for his mastery of the field and drew the iconic cartoon reproduced in this article.

As the business grew, Mike developed more products including phantom power supplies, large display slates, the GR-1 Master Clock, A-D converters and other creative solutions to the practical needs of film and audio production.

Charles Parra joined the company in 1991 just out of trade school. Sensing a kindred spirit, Mike assigned him the task of laying out on the computer the circuit board for the original slate. He didn't need to have the work done but he wanted an assistant comfortable with computer circuit design. Although self-taught himself, he sent Charlie to school to take courses in electronics.

Charlie remembers: "Mike fostered a working friendship rather than a typical boss worker scenario. He had a great sense of humor

Denecke's shop on Cahuenga Boulevard

and was very unselfish. When I'd show up for work, Mike would often say, 'Charlie, I had this great idea in the shower.' I still hear his words now.

"Mike was so shy that he would play at parties but would never like to acknowledge how well he played the guitar."

A small film community grew up in the North Hollywood part of Cahuenga Boulevard where Mike had his shop. Manfred's office was immediately adjacent to the shop; Chinhda, Neil Stone and Peter Weibel were all nearby. They often met for lunch and worked cooperatively. Mike developed a portable microphone mixer for his own use but declined to develop it, not wanting to compete with friends making similar products.

When Manfred told Mike that he was interested in making boom poles, Mike encouraged him and advised him on how to go about having them fabricated. Knowing that Manfred had little start-up capital, Mike handed him a pad of Denecke purchase order forms and told him to buy all the materials he needed for 200 poles and repay the debt when he could.

Mike Denecke died suddenly of a heart attack in March 2000 while hiking with his wife Celia and his nephew. The last product he worked on was the AD-20 Microphone Preamp. Charles Parra and Celia kept the business operating and Charlie later assumed full control of Denecke Inc.

Few of us knew the man in full. He was, by turns, a teacher, a sound engineer, an entrepreneur, an inventor, a lover of wine in good company, a musician and a friend.

Weibel: Michael was an artist.

Chinhda: Michael was a teacher, a brother. Mike taught me about the economics of business and how to be an independent businessman.

Parra: He was my mentor.

We like to think of him playing his guitar and dancing in the moonlight.

a Single-Feed Playback:

HOW HARD CAN IT BE?

by Ben Betts

In the early days of video playback, the biggest challenge of that single-feed video playback day-call was usually finding the location and getting along with a crew you'd never worked with before.

A typical day would start by picking up the equipment package from the rental shop. This usually included a faxed copy of the call sheet and a 24-frame ¾"-inch tape, already containing the transferred playback material, with a color-corrected and non-color-corrected pass. Upon navigating to the location with the help of the trusty *Thomas Bros. Guide*, you'd find an assistant director and try to get an idea of the scope of the day's work. Often we were treated with a certain amount of respect, being the "expert" in the mysterious 24-frame sync video voodoo. We would usually be introduced to the director, who would describe how they would like the video to tie in to the scene. Now the real politics would begin; we'd find a spot near the sound mixer, make nice with the Camera Department, tease the dolly grip about adding another cable into his tether and, perhaps, do a little "meter bonding" with the director of photography, while discussing exposure and color temperature. Once settled in, gear unpacked, cables run, television adjusted, camera synchronizer attached and phased, we'd sit back and wait for our big moment.

Here we are 15 years later, and those day-calls for single-feed playback still come, but a lot has changed since those composite-video radio-frequency woodgrain-television days. You'd think with all the new technology at our disposal, that "simple" job would be a bit easier. Well, my brothers and sisters, think again…

OK, the day starts out about the same: Pick up the gear from the rental shop, check the call sheet on the iPhone, while our GPS gets us efficiently to location. Today, we're shooting in a soundstage on a studio lot, even; life is good! The equipment is a fraction of the size of those bulky decks and CRTs we used to lug around. In fact, today's playback came on a DVD-ROM as a Quicktime file. The whole thing can play off a single laptop, with no 24-frame gear or camera sync box; isn't technology wonderful?

So, we find an assistant director who shows us the set. Here is where the trouble begins. It's a tasteful Spanish-revival style apartment, complete with large LCD hung above the fireplace. Apparently this is the third screen Set Dressing has now mounted and remounted. The first was not only a plasma screen, but too big and the second, a product placement model that has been found to flicker on film. A note to those who thought all LCDs are the same: many of the newer models oscillate the backlighting to control brightness, resulting in a flicker at 24fps. Also, only a few select plasmas can be driven at 48Hz and will photograph fine—it's always safest to do a film test ahead of time on any new models.

Our quaint apartment set (surely within the means of the fictitious character's income) is constructed in such a way that there is no simple path to get cables from the back of the television to the outside of the set. Construction has thoughtfully drilled a 1½" hole behind the TV mount and already fished the power cable through, which is hanging down into the fireplace opening. Like most video playback engineers, I'm generally armed with an arsenal of too many devices, adapters and cables, so I'm sure we can figure out some clever solution.

My first choice, for the best image quality, is to play the high-definition Quicktime video file back via Final Cut Pro, MacPro w/RAID with an AJA Kona or Blackmagic Design Decklink card. Given that we're going for a more portable setup and the file is already compressed, a laptop with AJA IO-HD is a good choice. The IO-HD is an external version of a high-end video processing card, also a Swiss army knife of video standards, including virtually every type of analog/digital audio/video connection, including HDMI, HD-SDI, all the way down to good-ol' composite video.

The shortest cable run, through the back of this set, is still going to be about 40 feet until it reaches the ground again, so an HDMI cable is probably not the best choice. I opt for HD-SDI on a single coax, terminating at a Blackmagic HD-Link behind the television. The HD-Link converts HD-SDI to HDMI/DVI and you can run HD-SDI for at least 300 feet without issue.

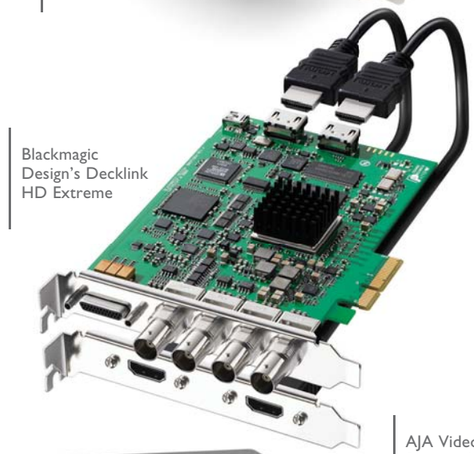
I don my mountain climbing-esque gear, and with safety assistance, a stinger from Local 728 and 50 feet of Canare coax, I head up the set wall. The mission is to fish the cables through the maze of set walls and flats that typically evolve over several seasons of episodic television. Once back on terra firma, I find a good place for our cart, away from wild walls and out of the fire lane, but within cable's reach of the sound mixer. It's always good to try and stake out some space before grip and electric fill every hole with a cart. Now it's time to fire up the MacBook Pro laptop, IO-HD and Final Cut Pro.

Our Set Dressing friends seem to have misplaced the remote control, so we're stuck with a row of buttons conveniently out of reach, on top of the TV. It seems that this consumer-grade LCD doesn't want to size correctly to our 720p video footage, either that or my HD-Link needs a firmware update. No matter what resolution/rate we select, there are black bars outside the visible picture, so it's a video frequency problem, not something that could be compensated for with FinalCut image-sizing adjustments. There's no choice but to crawl back up inside the fireplace, retrieve the HD-Link, take it, the laptop and a USB cable to the nearest WiFi signal to download and install the latest firmware. Well, the "computer gods" are not smiling on us today; the firmware upgrade just crashes mid-install upon every attempt. Aargh! Back to the drawing board!

Digital is nice and all, but for this situation, we'll fall back to analog video. Unfortunately, I failed to bring any long component video cables, but there is a decent 50-foot VGA cable and some VGA-BNC breakout adapters. I don't usually recommend using VGA cable as three pieces of coax, because often they are not true 75 ohm cables and don't have enough shielding, but this happens to be a fairly high-quality cable, so we'll see how it does. It's back up, climbing over set flats, braces, adorned with exposed drywall screws, staples and other sharp unfriendly traps, until the VGA cable is run alongside our existing power and coax back down to our station.

Upon attaching the breakouts to both ends of the VGA cable, connecting to the IO-HD's YUV outputs and the TV's component input, the resulting video image looks really noisy! Everything's grounded and on the same power? Is this cable not up to snuff? Ah, the red consumer RCA connector on the TV's input seems to have previously met with an accident. Of course, we already know that Set Dressing has no backup/other televisions in this size range. Though the TV has four HDMI inputs, it only has one component input—so much for that idea.

AJA Video Systems KONA 3



Blackmagic Design's Decklink HD Extreme

AJA Video Systems IO-HD

Like many televisions these days, this one has a VGA (HD-15) "PC" input. OK, so how about scrapping the beautiful video of the AJA IO-HD and just use native Quicktime decoding, directly out of the laptop, and repurposing our VGA cable as an actual VGA cable? (sigh) What choice do we have, at this point? At least it won't involve more climbing over hill, dale and staple-laden set walls. Luckily, we just received a few of the new Mini Display Port to VGA adapters in the mail yesterday (thank you eBay). After attaching the adapter to the laptop and moving the VGA cable from the breakout adapter to the HD-15 connector on the TV, we "detect" the monitor on the laptop. The MacBook sees the TV, including the native 1280x720p resolution! So, balancing on an apple box, we select the different inputs on the TV, using the not-so-convenient set-top buttons and… "PC" input is grayed out! What the??? Upon trying several resolutions on the laptop and plugging a spare computer monitor from another set, to verify

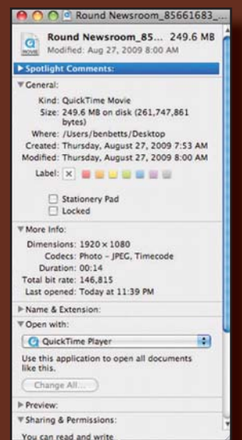
the VGA cable, it becomes obvious that Red RCA connector is not the only funky thing on this TV. Now what?

It's last-resort time. We happen to have a trusty Apple Mac Mini, which we stick in the place of the previously abandoned HD-Link behind the TV, using the same DVI-HDMI cable. Our original coax serves as an audio feed back to my cart and the sound mixer. I set up the Mini to act as wireless node (under Airport, select "Create Network") and control it from my laptop via Apple Remote Desktop (you can also use screen sharing within Leopard/Snow Leopard.) At least now we can run the playback, controlled by the laptop, untethered from the cart.

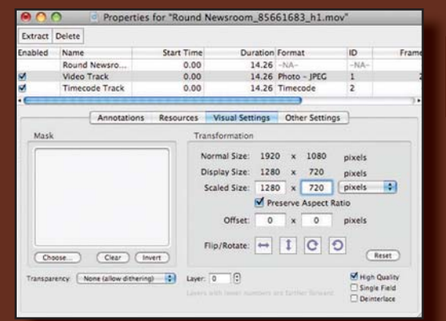
In a few minutes, the Quicktime file has been copied to the Mini. The first thing we notice is that the file is playing back with no video (completely black). Upon looking at the file's properties (File/Get Info) it is clear that we're missing the appropriate codec (code-decode) file. There are thousands of codecs out there, virtually all available for free, online. One thing to be careful about is there are sometimes several versions of the same codec, based on different hardware. For example, the "redcode," for the Red One cameras, only works on Intel-based computers. So, make sure to quit Quicktime, find the required codec, in this case Sony-HDV, and copy it into the player computer's "Library/Quicktime" folder. Having the codec it was looking for, the file should now play correctly. The next adjustment is to fix the aspect ratio, which appears to be just a bit too squeezed for this particular TV. The footage seems to have been shot on film at 1.85, but the TV is 16:9 (1.78). Quicktime Pro ($29 upgrade from Apple) offers numerous amazing scaling features. From within the player you can adjust the display size, set in/out points, adjust the picture image, etc. It's actually a decent method to play back a simple video element too, assuming you don't have more than a few cue points.

Fellow 695 video playback engineer Joe Crouch recently wrote a utility called "JPlaya" to address some of the specific needs when controlling the playback of individual Quicktime files. It can set and jump to cue points on the fly, set loop points, mute audio, cut to black to simulate a monitor turning off or cut to green screen. The program works at most common resolutions and has an option to work on a dual monitor mode (more like Final Cut Pro vs. Quicktime Pro), where one monitor is the on-set playback and the other monitor contains the scrub bar and timeline.

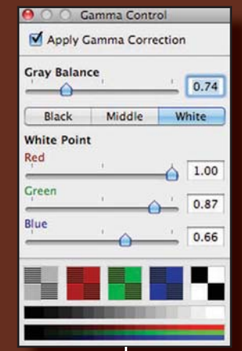
For the ultimate in playback versatility, there is nothing quite like Steve Irwin/Steve Sexton's RAP (Random Access Playback) software from Playback Technologies. The program was written with features designed specifically for doing video playback on set and controls Fast Forward Video Omega Decks and Playback Tech's DVRs, ranging from the basic VA50, up to new RaptorX HD. If this had been an interactive channel-change gag, or several feeds that needed to be cued together, we would have definitely arranged to rent a package that included the RAP software. For this "simple" single playback, Quicktime Pro offers enough functionality for what we need to do today.



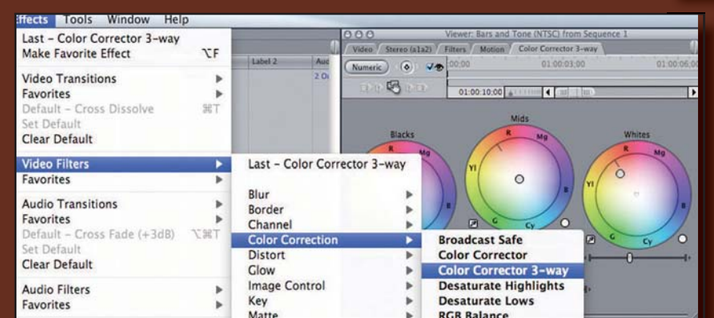
Quicktime Info-Codec



Apple Quicktime Scaler



Gamma Control Shareware



Final Cut Pro Color Corrector

We still need to address color correction. The set is being lit with traditional incandescent lamps and halogen practical fixtures, so it's clear that we'll have to warm up our video into the 3,200-degree Kelvin range. The gaffer confirms that they're shooting mainly tungsten, with just a touch of daylight mixed in. A discussion of color temperature could be several articles long, but for today we'll just go over a few basic tools used to get there, rather than the more subjective art of balancing video screens to match set lighting.

If we were still playing back the video via AJA IO-HD, Final Cut Pro's built-in "3-Way Color Correction" filter is very versatile. If the video were standard definition and we had a Schindler Imaging Standards Converter handy, then the built-in color correction presets are excellent. Our current situation involves playing back the Quicktime file from the Mac's desktop, so shareware programs like Gamma Control or Dark Adapted work well to adjust the output of the video card. Basically, we need to add some red and remove some blue from the white point, getting our TV's picture, backlit with its own internal daylight (around 6,000 degrees Kelvin) source, closer to matching the warm tungsten lights on the set.

Just as the TV's image is starting to look decent, a low rumbling can be heard. Here comes the film crew, making their move from the next stage over. I'm often reminded of a traveling circus, when I see the caravanning train of carts, racks, forklifts and people flowing from one location to another. Soon the once peaceful apartment set is filled with the hustle-bustle of enthusiastic crew, bearing lights and c-stands. The ADs attempt to shush the ruckus, as the cast, grasping their curled script sides, start to rehearse the scene. On cue, I play the Quicktime movie back, the actors read their lines and all goes well, until halfway through page two when the director yells, "this is not the right video!—Where's the other one … we can't see this guy … no, no, no…" A panicking 2nd AD rushes over to ask me where the "new" video is.

Apparently, the team of studio lawyers was not able to clear the video element I was given, so something else was edited together at the last minute. A few calls are made and soon a PA shows up with a VHS tape, DVcam tape and DVD. Aside from being standard definition, none of these formats lend themselves well to high-quality video. Playing back video on a large HD screen, potentially inches from an actor's face, is like putting the video under a magnifying glass. We really want footage that's as close to the first generation as possible, not to mention that the up-converting scaler built in to a sub-$1,000 TV can't compete with the video processing of professional video equipment. Most post-production departments still live in an offline world, so their actual video output is really geared for preview purposes, not online broadcast-quality. As expected, the DVcam appears to have crushed blacks and, I'm guessing 10:1 compression, off an AVID. The DVD is 4:3 letterboxed with a time code window burn and I'm not going to even bother looking at the VHS tape. I proceed to rip the DVD with MPEG-stream clip (Handbrake is also a good choice; both are available for free, online).

As the computer is churning away, I ask where the lovely HD file I was originally given this morning came from and how I could possibly get a better quality copy of this new video. "Oh, they're both from a stock footage library," I'm told. The DVD is now finished and I notice that the clip they've given me is only about 42 seconds, which is really great when the scene is over two pages long. Just as I'm about to resign myself to a really mediocre playback, one of the assistant editors shows up with his laptop. Much to my surprise, this guy actually "gets it." He also has the original stock video files, in 720p and 1080i. The company breaks for lunch and we sit down to attempt to assemble something usable, both clicking away on our matching 17-inch MacBooks sharing the same Firewire 800 external hard drive. It turns out that the original clip was fine, except for one of the actors, whom they couldn't get cleared. We build a new sequence, using the original footage to fill in behind the new selects, add a few Lower 3rds, etc. Before you know it, we've got a four-minute newscast, worthy of a network TV station. The final 1280x720 Quicktime file is rendered as a DVCproHD file, and is approved by the director and copied to the Mac Mini before the ADs call us back from lunch. We were lucky it was a one-hour walkaway!

SOME OF THE PRODUCTS MENTIONED:

AJA IO-HD, Kona 3
www.aja.com

Apple Final Cut Pro, MacBook Pro, Mac Mini, Snow Leopard, Quicktime Pro, Remote Desktop
www.apple.com

Blackmagic Design HD-Link, Decklink
www.blackmagic-design.com

Playback Technologies RAP, VA-50, Rapter X HD
www.playbacktech.com

Fast Forward Omega Deck
www.ffv.com

Dark Adapted, Gamma Control, Handbrake, MPEG-streamclip
www.versiontracker.com

Joe Crouch's JPlaya
www.jplaya.net

In the end, the scene went fine, the TV looked good and a few seconds of our Frankenstein-ed video compilation might actually make it into the show. I left the lot with a sense of satisfaction that I earned my money for the day. It certainly was above and beyond the usual call of duty, but that seems to come with the territory these days. Even though we have more extravagant tools at our disposal, the technological combinations are more diverse and the expectations of today's production are so much higher than they used to be. Everyone has a large HD TV in their living room and a mini TV studio in their iPhone, so it's hard to impress anyone with a single TV screen anymore. "How hard can it be?"

Ben has always had a passion for integrating audio, video and computer technology. He holds a bachelor of science degree in telecommunications management, is active in I.A.T.S.E. Local 695, a licensed C10 Electrical Contractor and THX-Certified Engineer. Among his work experience, he built one of the first microcomputer CGI–rendering farms for Amblin Imaging, logged more than 12 years as the Supervising Engineer on Paramount's various* Star Trek *TV series and feature films, recently acted as video technical director for* Studio 60 on the Sunset Strip, *and currently is the key video engineer on NBC's* Chuck *at Warner Bros.

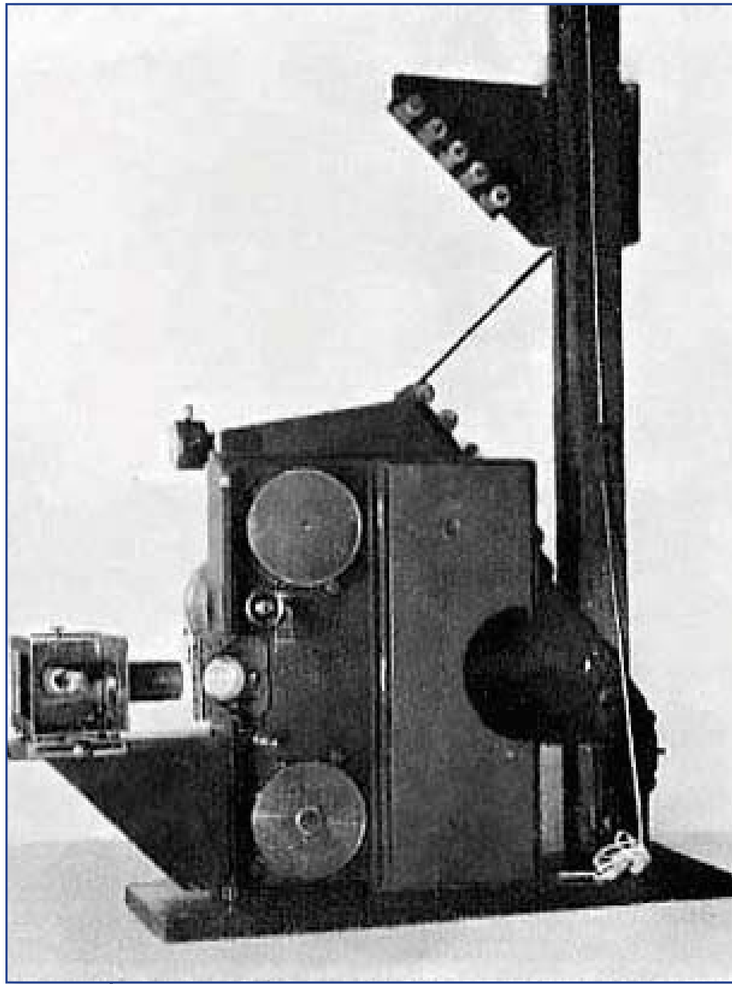
When Sound was Reel 3

Sound-on-Film: The End of the Silent Era

The previous installment of "When Sound Was Reel" dealt with the early period of commercial motion picture sound development, from approximately 1915 to 1930. In this installment, we will look at some of the technological and business confluences that led the move to optical sound recording on film.

The stunning success of *The Jazz Singer* in 1927 made the transition to sound a "Force Majeure" for the heads of the major Hollywood film studios to contend with. While a transition period took place between the silent and talkie era, by December of 1927 it was obvious to nearly all industry observers that a sea change had taken place in the exhibition of motion pictures. Audiences would no longer be content with simple musical accompaniment, no matter how well executed. The degree of upheaval this caused in the industry is hard to fathom by today's standards. Not only would it require a huge investment on the part of the studios who wanted to stay in the game, it also completely upended the stature of leading actors and actresses, some of whom had voices that were deemed completely unacceptable by the studio heads of the period. In short order, the careers of silent stars such as Norma Talmadge, Lillian Gish, Gloria Swanson, Harold Lloyd and others would be finished. While some, such as Lillian Gish, would continue to find work on stage, others, such as John Gilbert, would not fare so well.

This period of upheaval, of course, gave the studio moguls an unprecedented opportunity to begin slashing talent costs. Contracts were cut and salaries renegotiated; actors who were deemed as having become "too difficult" were unceremoniously dumped. While some actors, such as Buster Keaton, were anxious to explore the new medium, their work would often be judged as "wanting artistically."



Tri-Ergon Recorder

by Scott D. Smith, CAS

Overnight, stars who previously had been staples of the silent film era would be replaced by a new set of faces, many of whom came from the stage or a musical performance background. In a fortuitous move that would serve them well, Warner Bros. picked James Cagney and Joan Blondell from the Broadway stage in 1930 and brought them to Hollywood. Other actors, such as Charlie Chaplin, would survive by adapting the medium to suit their needs. Movies such as *City Lights* and *Modern Times* employed music and sound effects almost exclusively (a technique that was parlayed to great advantage by later filmmakers such as Jacques Tati).

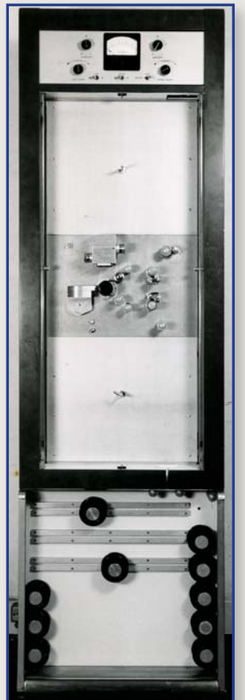
Simultaneous with the wholesale shift of on-screen talent, additional events were taking place that would affect those working behind the scenes. Most notably, stage musicians, who had, throughout the 1920s, provided the musical accompaniment during exhibition, now found themselves unemployed. Despite various efforts by the American Federation of Musicians to stem the growing number of theaters that switched from live accompaniment to sound, it was of no use. By the end of 1929, more than 22,000 moviehouse musicians had reportedly lost their jobs.

While Hollywood struggled to deal with the wrenching changes brought about by the introduction of sound, on the other side of the country events were brewing which would cause further grief. The crash of Wall Street in October of 1929 would prove to be the first opportunity for industry watchers to declare the film business "recession proof," although it did in fact extract a huge toll on the rest of the country and ultimately, the global economy. Hollywood, however, managed to escape the most deleterious aspects of the recession. In fact, the 1929–1930 exhibition season saw a rise in box-office receipts in comparison with the previous period, although by the end of 1930 box-office take would level off. The major studios, however, had already managed to cash in on the boom in sound motion pictures prior to the crash. Profits at Warner Bros. alone went from $2M to $14M in the span of one fiscal year (and don't forget, this was in 1929 dollars!). Paramount, M-G-M and Fox likewise experienced substantial gains (although not quite in the league of Warner's profits).

Given the substantial sums of money to be had in motion pictures during a period of recession, the heads of the studios took it upon themselves to advance the technological development of sound as quickly as possible.

Format Wars (the early version of VHS vs. BetaMax)

For better or worse (not everyone was convinced that sound was a great addition to the movies), it was recognized by the Hollywood establishment that there were substantial sums of money to be made in sound motion pictures. Therefore, studios wasted little time in figuring out how to innovate and advance the technology of sound recording and reproduction. Thus began a period of rapid development which would continue in earnest for nearly 30 years, slowing somewhat during the 1960s.



Western Electric RA-1251 Re-Recorder

Given the resources required to mount such a massive effort, the majors realized early on that there would need to be some form of standardization for sound on film (at least for distribution). The control they could exert in this area also meant that they could crush their smaller competitors, who didn't have the deep pockets of the majors. Thus was born the "Big Five" studios (consisting of MGM, Paramount, Fox, Warners and RKO) allied with three smaller players (Columbia, Universal and United Artists).

Despite the efforts of the majors to standardize the format of sound recording for release prints, a number of obstacles stood in the way. One of the most daunting aspects of the process was dealing with the wide-ranging patents held by various U.S. and foreign entities. Although Warner Bros. had made an early commitment to the Vitaphone process with their investment in Western Electric, they quickly realized that the cumbersome problems related to synchronizing film and disks made for an unworkable system. This did not appear to slow development, however. Despite the fact that First National was the *only* other studio to use the fledgling Vitaphone process, a number of theaters throughout the country were now equipped with the system, and for a number of years films were released with *both* sound-on-film and Vitaphone discs! (A similar scenario exists today, with nearly all major features being released in Dolby SR/Dolby Digital and DTS.)

Early on, nearly all U.S.–based domestic development for sound-on-film had been undertaken by Edison, Bell Laboratories (Under AT&T) and Western Electric. Other key figures included Lee De Forest, Theodore Case and Earl Sponable, Eugene Lauste (a Frenchman who worked at Edison's lab from 1886 to 1892) and Freeman Harrison Owens (who, as an employee of Lee De Forest, would later enter a court battle against his former employer).

Simultaneous to the efforts being made in the United States, development was also taking place in Europe, with three German inventors receiving a patent for the "Tri-Ergon" system, which would later become the dominant system for most European theaters. Also notable is the work of Danish engineers Axel Petersen and Arnold Poulsen, who developed a system dubbed the "Cinéphone." This system was employed briefly by the Gaumont studio for some of its releases, but later abandoned.

ERPI/Western Electric

In late 1926, AT&T and Western Electric formed a separate entity called Electrical Research Products, Inc. The sole purpose of the company was to handle the licensing rights for the company's film-related audio technology, with revenues generated by the Western Electric patents going to ERPI. In turn, Fox-Case agreed to cross-license their patents to Warner Bros. This arrangement proved beneficial for both studios, as it provided Fox with the amplification technology they needed, and gave Warner's access to the Case sound-on-film technology.

Pursuant to the Fox-Case/Warner Bros. agreement, a second agreement with the five major studios was signed in February of 1927. The stated purpose of this agreement was to collectively decide upon one provider for the conversion to sound. This would not work exactly as planned however ... it would take the group well over a year to ultimately sign a contract with ERPI. Due in no small part to the delay on the part of the "Big Five" in settling the decision on which sound system they would employ, ERPI was about to lose their near exclusivity in the U.S. market.

RCA Photophone

Although Western Electric and AT&T enjoyed an early lead in commercial development of sound on film, they were not the only companies active in film sound. RCA, under the ownership of General Electric, held a significant number of patents and engineering technology related to broadcasting and sound reinforcement. With the financial resources of General Electric behind them, RCA had begun work on their own sound-on-film system, which would become known as the RCA Photophone system. This name was derived from a 1925 patent granted to GE, which related to earlier sound-on-film processes.

However, were it not for the doings of a particular East Coast businessman, there is a good chance that RCA may never have found a way into Hollywood.

During the early 1920s, Joseph Kennedy was a broker at the New York banking firm of Hayden, Stone & Co., as well as the owner of a small chain of theaters in Maine and New Hampshire. Through a series of corporate maneuvers in 1923, Kennedy would gain a seat on the Board of a British-based company called Film Booking Offices of America (FBO). During his tenure, he put together a significant production and distribution deal with FBO and Fred Thomson, who was a leading star of Westerns during the period. However, despite doing fairly good box office with the slate of films they were producing, FBO required additional capital if they were going to survive.

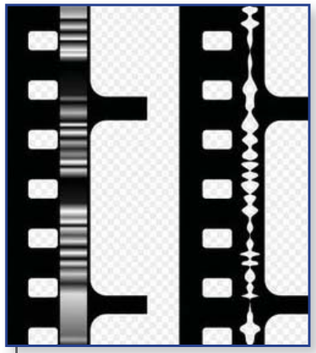
Never one to shun an opportunity when he saw one, Joe Kennedy assembled a group of well-heeled East Coast businessmen and headed to England in August of 1925 to buy a controlling stake in FBO for the sum of $1 million. While his initial offer was rejected, by February 1926, the owners relented. Joe Kennedy was now in the motion picture business.

Kennedy took an active interest in the studio's operation, and his efforts were apparently well received, especially by his East Coast business associates. Although the studio did not produce flashy fare, sticking mostly to small melodramas and Westerns, the firm managed to remain profitable, and had a solid distribution network. In August of 1928, as part of a deal hatched with RCA Head David Sarnoff, Kennedy sold a major interest in his FBO stock to RCA (which he already had stock in). He subsequently acquired control of Keith-Albee-Orpheum (KAO), which included the operations of the Pathé (U.S.)–De Mille film companies (which would later become the basis of RKO Pictures).

Concurrent to the events surrounding RCA's interests in FBO, problems also continued with ERPI/Western Electric Vitaphone system. With its foot now firmly in the door of Hollywood, RCA wasted no time in challenging the status of ERPI as the dominant force in film sound. With their system of variable area sound recording in 1928, RCA was able to win Warner Bros. over as one of its licensees. Other studios quickly followed. By March of 1930, Warner's had abandoned the Vitaphone process altogether, effectively taking ERPI out of the picture as the exclusive provider of film sound recording.

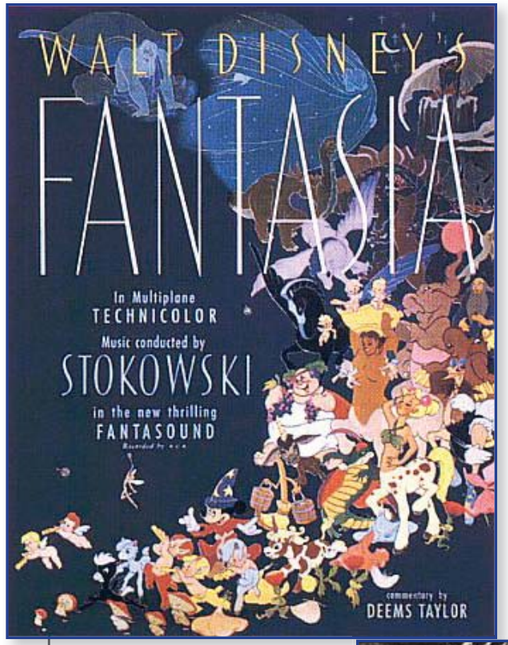
Variable Area vs. Variable Density Soundtracks

Despite RCA's entry into the film sound business, this did not spell the death of Western Electric/ERPI and the variable density sound-on-film process. Although a few considered the RCA variable-area sound system to be superior to variable density, most of the perceived differences could be traced to processing and printing control. The primary enemy of variable-density recording was poor gamma control in processing. As labs tightened up their process control and film stocks improved, many of the initial complaints surrounding variable-density began to disappear. Despite this, Western Electric (later Westrex), quickly adapted their ribbon light valve to be used for variable area recording, thereby removing RCA's sole hold on the process. Likewise, RCA developed a variable density version of their galvo system to compete with the Fox-Case system.



Variable density push-pull soundtrack

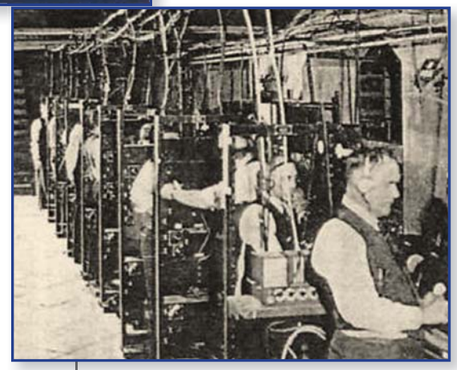
During this rapid period of development in optical sound, many variations of both variable-density and variable-area soundtracks would be produced. Notable among these was the "push-pull" method of sound recording, whereby a single channel of sound would be recorded on two adjacent soundtracks (either variable area or variable density), with one image out-of-phase with the other. When properly reproduced, any imperfection common to both track areas (dirt, splices, etc.) would be significantly reduced in amplitude, while the two out-of-phase images would be reproduced at full amplitude. (A similar approach was employed by Stefan Kudelski in the design of the Nagra Neopilot sync system, which used two narrow out-of-phase sync tracks recorded at 60 Hz. When reproduced by a full track audio head, the two channels would cancel each other out).



Fantasia poster

A second approach which gained popularity beginning in the 1950s was the use of multiple variable area soundtrack images placed in a side-by-side manner, utilizing the same area that a single track would normally employ. This resulted in a slight improvement in signal-to-noise ratio, as well as reducing problems associated with misaligned projection reproducers, which frequently had issues with uneven slit illumination or incorrect track centering. John Maurer took this approach to the extreme, designing a galvo which could record six images side-by-side on a 100 mil. wide soundtrack!

In 1940, Walt Disney would put optical sound recording to the ultimate test, with the production of the movie *Fantasia*, a phantasmagoric journey featuring the first commercial use of multi-channel stereo film sound. With a score by Leopold Stokowski and the Philadelphia Orchestra, the recording process, dubbed "Fantasound,"_employed multiple 35mm optical recorders and a unique wide range multi-channel stereo presentation system. Conceived in large part by engineers William E. Garity and John Hawkins, Fantasound represented the ultimate achievement in optical sound recording, with a roadshow presentation which finds many similarities to the current IMAX sound system (albeit with a lot fewer watts of amplification!).



View of eight recording channels at the Philadelphia Academy of Music.

View of the three-channel mixing console used in scoring the *Fantasia* vocal numbers at Burbank. Hawkins, Hisserich, and Marr.

While the release of *Fantasia* did not result in critical or commercial success during its initial run, it served as a "proof of concept" for later stereo and multi-channel film sound systems, boasting unique design elements (such as a three-channel stereo pan-pot) that carry over into the current mixing practices for Dolby Stereo and Dolby Digital. These guys were way ahead of their time!

Over the next 20 years, the quality of optical sound would continue to improve, bolstered by research programs funded by the Academy Research Council, as well as by major studios and equipment manufacturers. However, it was nonetheless recognized by all involved that the numerous stages, beginning with production sound through the final mix, that a picture had to pass before hitting the theater posed a real challenge in maintaining quality control. The number of places in the recording chain where something could go wrong was simply mind-boggling. As such, it is not unusual to hear a soundtrack for different titles produced at the same studio, during the same year that sound radically different.

Maintaining the equipment used for sound recording during this period was a full-time job, one which employed a significant number of engineers and technicians with some serious engineering know-how. In particular, the job of recordist was not a position to be taken lightly. As optical recording was still the only medium for film sound recording at this time, the recordist was part of the crew at all stages of recording, including production sound, music scoring and FX, all the way to the final dub. The best mix in the world would never hit the screen if the optical recorder was not set up properly, or if audio levels weren't strictly monitored, (not to mention if the operator did something dumb, such accidentally exposing the film to light). Recording on location posed its own set of problems, especially with the use of generators and battery power.

Due to these myriad factors, the directors of the sound department at the major studios were on the constant outlook for technologies which would provide a more reliable sound recording chain, as well as not relying so heavily on the technical skills of the operator. Their search would soon bear fruit, but not until a few more complications were dealt with. *©2009 Scott D. Smith, CAS*

In the next issue: Magnetic recording makes its Hollywood debut.