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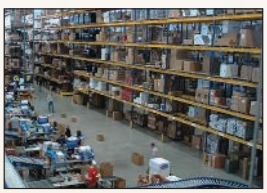

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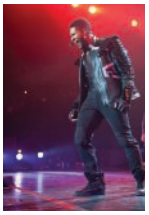
on the cover

Major Tom out of the UK supplied the Meyer system that powers Usher's latest stage extravaganza. See "All Access," page 46. **Photo:** Steve Jennings.



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The Ever-Changing, Ever-Expanding Universe of Live

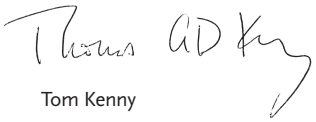
In 1988, when I joined *Mix*, I knew what Live Sound was. It was stadium dates with the Rolling Stones and club gigs with Nick Cave. Sheds for the newly anointed Platinum-sellers and Red Rocks for the jam band that nobody paid attention to at MTV but who could fill three nights outdoors on a summer weekend. It was big sound, rock 'n' roll production. Stacks and racks at front of house, wedges across the front of the stage and a crew that could set up a monster rig each night and then have it packed in the trucks before the last Joe the Fan made it out of the parking lot.

We covered it all, and a whole lot more. We featured cool stadium installations, the occasional Cirque du Soleil premiere, the live TV awards show from the FOH perspective. We even once wrote about a Microsoft product announcement that filled the Thomas Mack Center in Las Vegas and employed a core sound crew for a month. By that time, we were calling it sound reinforcement, and though we still do internally, we found that SR doesn't really have the brand recognition that Live Sound does once you step outside our industry and strike up a conversation in a hotel bar.

So Live Sound it is. And we keep covering it, in just as many ways. There are just more ways! Concerts make the news, let's face it. They're a lot of fun, and we fill our pages with the best and the brightest. But it can be a fickle business: Ticket sales are up, ticket sales are down. Bon Jovi is giving away free tickets, Kings of Leon is playing to 80,000 in London, country acts are recession-proof. The business is booming, the business is hemorrhaging—a ping-pong cycle with no shortage of commentary. It's been simultaneously billed as the savior of the music business (from the artist's perspective) and the biggest gamble in entertainment and mass-market consolidation (from the Wall Street pop news perspective). But that's the concert business, subject to the popularity of a few big names to drive the grosses up. It's not necessarily the club industry, and it's only a subset of the Live Sound business. The Live Sound business is everywhere, every day.

This came clear to me many years ago when I met Emmet Foley, then a part owner and engineer at Production Logic, a regional sound company here in the Bay Area. He brought his Adamson rig to Reggae on the River and mixed for three days, then set up for an Oakland City Hall press conference, then had a stage at Kaboom for KFOG radio and later mixed a show at a San Francisco theater. All in a couple weeks. Others do weddings and cruise ships and political rallies. Fundraising events, hotel ballrooms, museum exhibitions and casino lounges. Some install systems for shopping malls and home theaters, small clubs and dotcom playpens. And everyone today, it seems, wants to gain entry into the church market.

Today we may find control system operators and IT integrators alongside a system tech. There are people who bring in flightpacks to record and send out audio over Ustream or satellite uplink. And there are many now implementing iPads, tablets and remote control and test systems. But honestly, most of the gigs themselves haven't changed. There are simply more of them, more opportunities for the enterprising engineer or the adventurous rental house or the college grad who can install an audio network for the new theme park ride. In the recording studio world, we like to say that while there may be fewer jobs for console jockeys, there's more music being produced than ever before. You could say the same for Live Sound. But you have to look beyond the concert stage.



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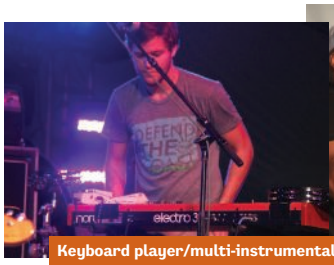
CURRENT

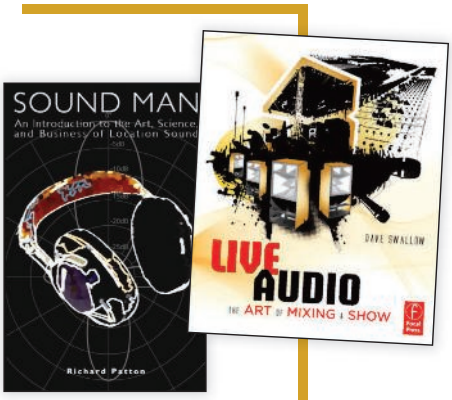
compiled by Sarah Benzuly



Keyboard player/multi-instrumentalist from MyNameIsJohnMichael rocks the coast.

From left: Big Sam, Tab and Cyril w/VOW

READ UP



Touring engineer Dave Swallow's *Live Audio* is a practical, hands-on, "in the trenches" guide to mixing and live sound—complete with real-world examples from both the technical and practical aspects of the gig. Topics include choosing the right equipment, being creative with the tools you are given, letting your mixes become more instinctual, understanding the important elements of live mixing and working with the band. Focal Press, focalpress.com; $39.95.

Rick Patton, a filmmaker/location sound technican who has spent 40 years making and working on movies, has published *Sound Man*, a 289-page book geared toward students and techs. Each chapter offers practical advice peppered with humorous anecdotes and a few "tall tales." Trew Audio, trewaudio.com; $28.

Musicians Supporting the Gulf

Local musicians playing at the recent VooDoo Experience (New Orleans) music festival joined national recording artists to support the restoration of the Gulf Coast and its surrounding communities.

"Help the people here!" said an outraged Dr. John, a longtime wetlands advocate and five-time Grammy Award–winning musician. "You've destroyed all our wetlands, you've destroyed all of our way of life!"

Bands such as REM, Ozzy Osbourne, My Morning Jacket, Pearl Jam, Galactic and many more added their support in a letter sent to the White House that urges President Obama to do all he can to ensure the region's survival. Go to mixonline.com to read the letter, check out videos from the event and more.

Jon Anderson (left) and Mike Keneally (below) working with students at Studio House

THE REAL 'SCHOOL OF ROCK'

Paul Green, founder of the School of Rock, began giving music lessons in his living room in 1996, and has now opened Studio House (studiohouse.com), a facility where established and developing artists can record free of charge while students observe and contribute to the process.

Green has assembled a team of music industry professionals to operate Studio House: Dolce Group's David Jarrett (CEO), Mike Keneally (musical director), entertainment marketing and promotion veteran Shanon Chaiken (COO), rock photographer Myriam Santos (creative director) and Strokes manager Ryan Gentles (music business consultant).

Since October 2009, Studio House has been operating a pilot program with 14 students ages 18 to 25 on a campus in rural New York state. A number of music luminaries have already visited and recorded at Studio House, including Yes' Jon Anderson, producer Tony Visconti, Gibby Haynes (Butthole Surfers), John Ashton (Psychedelic Furs), Bakithi Kumalo (Paul Simon's *Graceland*), Marco Benevento (Jazz Farmers), Grammy Award–winner Neil Citron, Gail Ann Dorsey of David Bowie's band, Joe Russo (Phil Lesh & Bob Weir's band Further) and members of Ween, Bad Brains, Betty and more.

Studio House is currently accepting applications for fall 2011.

Industry News

Mike Prestwood Smith

Re-recording mixer **Mike Prestwood Smith** joins **CSS Studios** (Hollywood)...**Hosa Technology** (Buena Park, CA) promotes **Ben Sweeney** to director of operations and international sales... **Harman** (Northridge, CA) news: **John Goodrich**, global sales manager for mass communications, and **Graham Hammell**, director, system development and integration group...New national sales manager of pro products at **Genelec** (Natick, MA) is **John Conard**...Filling the **Calrec Audio** (Hebden Bridge, UK) regional director of sales for Western U.S. and Canada is **David Letson**...Based in **GC Pro**'s (Westlake Village, CA) Atlanta locale is **Brad Lyons**, account manager...**Joe Falkner** joins **Megatrax** (North Hollywood) to serve as division manager for newly created Aircast Production...**dBTechnologies** (Cologne, UK) adds **Robert Moore**, area sales manager...Distribution deals: **AVW** will handle **DK-Technologies** (Copenhagen) in Australia; and **Midas KT** (Agoura Hills, CA) appoints Miami-based **Italo Trading LLC** for Latin America.

"Simply put, tubes sound pleasant to the ear. They treat signals with respect. But perhaps more profoundly, they place serious constraints on how much circuitry you can build into a unit. With a solid-state design, an engineer is free to add circuitry with very little penalty, which can start you down the road of 'fixing' perceived faults in the design with even more circuitry. Unfortunately, the end result is usually something that sounds worse than if the original circuit had been improved from the start. As a result, I have to design very simple circuits. There is no 'patch' that I can use to fix a circuit's faults. It has to stand by itself."

—Tube-Tech president John. G Petersen on building gear for the past 25 years

Listen Up

House Ear Institute is launching a national teen hearing loss prevention campaign online for its educational initiative "It's How You Listen That Counts." Designed to encourage teens to care about protecting their hearing from overexposure to damaging sound levels in their daily lives, the three-month promotional push targets educational messages to teens ages 12 to 19. The Teacher's Toolbox, available at www.earbud.org, provides middle and high school instructors with downloadable classroom materials.

For schools in Southern California, the institute offers in-school workshops—which may include the Ear Bud cartoon character (pictured) helping out in the discussions. To schedule a workshop, contact Marilee Potthoff at mpotthoff@hei.org.

The national campaign is funded with grants from UniHealth Foundation and the Max and Victoria Dreyfus Foundation.

Studio Unknown Update

You may be firmly planted behind your console within the confines of the four walls of your studio day after day, but that doesn't mean the live sound world is separate and apart from yours. After all, you're eventually going to have to work with what the live sound guy recorded, not to mention the client during the mix. What can you do to ensure that you get what you need, and how can you effectively communicate with clients and help them to maintain realistic expectations if you didn't? Read the January installment of "Confessions of a Small Working Studio" to find out, available at mixonline.com.

Linear Gets Emmy

Linear Acoustic, the world leader in television audio control from production to transmission, was selected by the National Academy of Television Arts and Sciences selected Linear Acoustics to receive an Emmy Award for Outstanding Achievement in Engineering/Technical Development for the company's pioneering development of a real-time audio/metadata processor to conform audio to the ATSC standard.

"This award represents not only the trailblazing spirit we've built into Linear Acoustic, but countless late nights at the work bench, hours of listening intently to our customers and turning 'a ha' moments into real products and features," said company president Tim Carroll.

The 62nd Annual Technology and Engineering Emmy Awards, presented by the NATAS, will take place on Thursday, January 6, as part of the 2011 International Consumer Electronics Show in Las Vegas.

THE DIGITAL ROADCASE

TOURING ENGINEERS SOUND OFF ON MIXING WITH PLUG-INS

By Sarah Benzuly

SONNOX OXFORD

DICKIE CHAPPELL

It was only a few years ago when we began to see live sound engineers carrying less outboard and relying more on onboard plug-ins. Today, an engineer *not* mixing with these onboard gems would be a rare find; this change may be the result of the gradual acceptance of digital consoles, which are now more of a mainstay on any tour. We checked in with a few FOH engineers to find out what's in their "digital rack."

Pete Keppler is currently mixing Katy Perry's promo tour, working on whatever the venue puts in front of him—Mackie, Midas, Avid or Yamaha. "I'm using the SPL Transient Designer and EQ Rangers, Crane Song Phoenix and Avid Time Adjusters on guitars and drums, as well as the Aphex Big Bottom Pro and WavesLive R Bass [Renaissance Bass]," Keppler says, "the Serato comps and parametric EQ mostly on vocals, and the McDSP MC2000 on keys. The [McDSP FilterBank, other WavesLive and Avid plugs] get used on aux sends/effects returns and on desk outputs. I'm not carrying any outboard as this has been primarily a seven-month promo run, and with the flight/travel schedule, carrying anything outside of a USB stick, CF card and an iLok has been difficult logistically." Keppler opted for these plugs primarily for sound quality, with ease of use and latency running a close second. In addition, he's used all of these plugs in the studio and has been able to hear their colorations and impact on the signal in that environment. "I also use SoundToys plug-ins extensively in the studio. They make killer-sounding stuff, and I've been bugging them to get their software up and running on the major live console formats, but so far, no luck."

Longtime Tony Bennett FOH engineer

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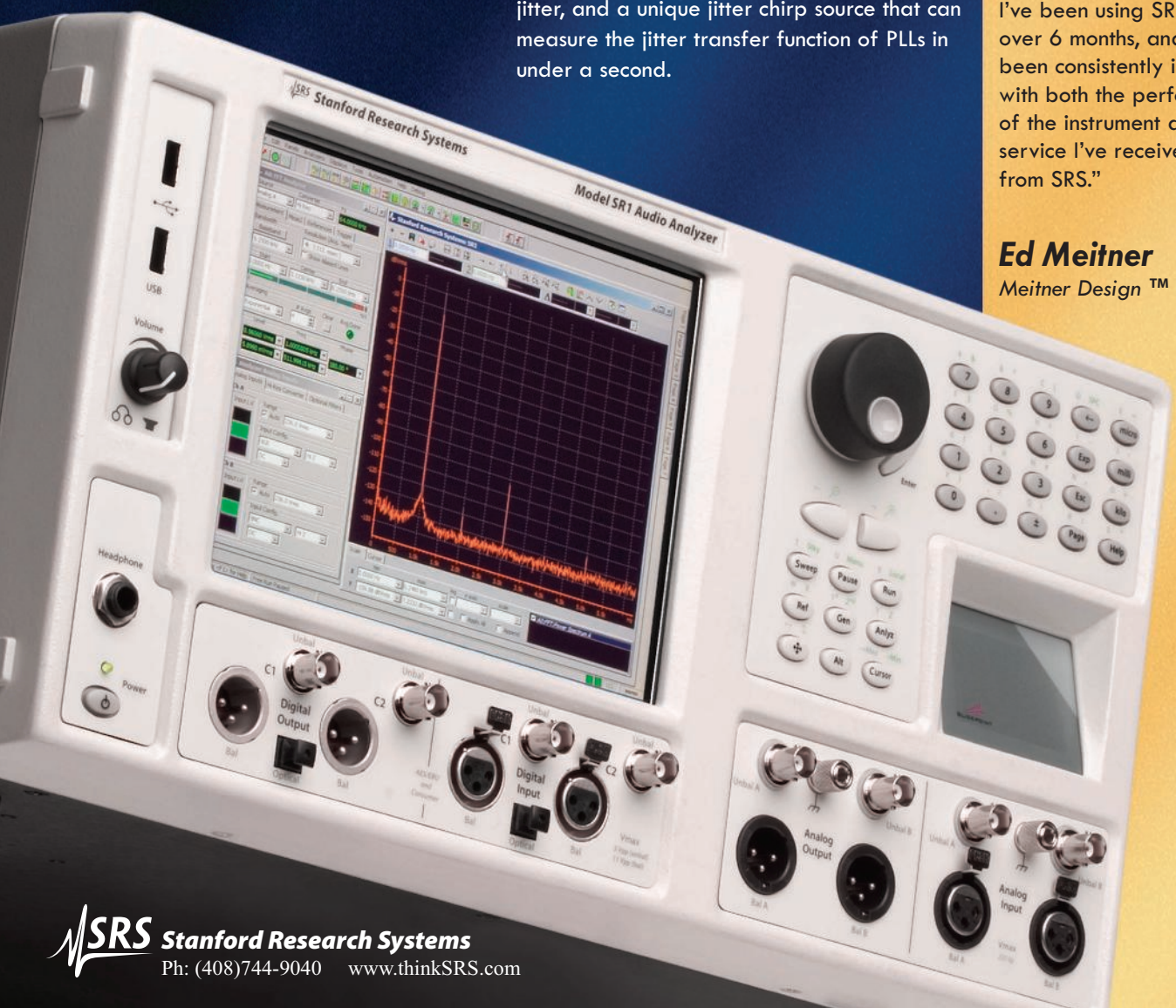

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the digital roadcase

Tom Young mixes on a Yamaha PM5D-RH1, using a Waves Y96K card plugged into the fourth slot of the board. He employs Waves' Renaissance package (which he's also used for years on recording projects) for upright bass, guitar and vocals. "My show with Tony is very dynamic in nature, so I sometimes use the L2 limiter on the main P.A. and across the recording outputs," Young adds.

Out mixing on a Midas Pro-6 with Rob Zombie is FOH engineer **Joel Lonky**, using such onboard plug-ins as Klark Teknik DN780 on vocals, DNS 780 on guitars and portions of the kit, dynamic compression on main vocals, and two long delays on the frontman. His thought process on choosing these plug-ins is pretty straightforward: "If it sounds good and does what I need it to do, I will use it," he says.

Monitor engineer **Richard "Dickie" Chappell** mixes on an Avid Profile for Peter Gabriel and orchestra's "The New Blood" tour in Europe and the States. "He spends the first-half of the show covering a bunch of artists, then he comes back on and sings a lot of his songs with orchestral arrangements," he says. "There are no drums or guitars; it's a new way for him to work." As for plug-ins, "We have a long history working with the Sony Oxford team, which is now Sonnox. We still have an Oxford console, so the concern Peter has touring is that he really wants to be able to use the Sonnox plug-ins on the road. I particularly use the EQ for its amazing sound and analog feel. It's very musical. Also, the Inflator and the Compressor got a lot of use; they are all pretty much essential."

PETE KEPPLER

ECHO FARM

Are you using any interesting techniques with certain plug-ins?

Keppler: [Line 6] Echo Farm has a couple of patches with some modulation and saturation controls. When you set the delay time to "0" and fool with those controls, it's great fun on vocals. Waves Imager and Shuffler can be really cool on some stereo inputs and delay returns, and I swear by the Renaissance De-Esser on bass, especially for thumb-slaps and super-saturated tones.

Lonky: I'm doing some side-chaining and effects-sending to other effects internally.

Do you find that you're relying more on onboard plug-ins rather than carrying outboard gear?

Keppler: Yes. However, the one piece of outboard gear that I've come to love and rely on is the Dolby Lake Processor. To my ears it is still the best-sounding piece for system EQ and delay, and the interface is very intuitive.

Young: Yes, most definitely. I'm averaging 100-plus shows a year with Tony, and most of the shows are fly dates in the U.S. or international. I can get a Yamaha PM5D everywhere—as I experienced this year in places like Istanbul, Turkey or Taormina, Italy. So being able to carry a Waves card or iLok key to get your plug-ins is very handy.

Chappell: I don't carry outboard gear. I do wish I were though. But with time and speed as they are, Peter is a stickler for keeping things the same once they are established. He wants the Sonnox sound to be the same, and with the Profile I can bring back everything exactly as it was in the last show—brilliant.

Does the need for a smaller FOH footprint (to sell more seats, for example) come into play when deciding on bringing plug-ins vs. outboard gear?

Keppler: Not really—possibly in a festival situation where there are lots of desks at FOH and no room.

Young: In some venues, eliminating an outboard rack is definitely a big plus. However, my decision on not specifying an outboard rack is based on the end results. I can achieve everything I need to by using the internal processing with the Yamaha console and plug-ins.

Lonky: No, not really. We play arenas, and the console is so small it doesn't really matter what I carry. My footprint is still half of what it was.

Do you find that your mix is more about replicating the album and using plug-ins used in the studio?

Keppler: I do get more requests these days to make it sound like "the album," but often I have no clue what plug-ins were used in the recording and mixing process. If there is any time for pre-production rehearsals, I'll take some time to really emulate certain sounds that I like from a record, like a particular distortion effect on drums or vocals, or a specific type of delay. And, obviously, if it's something particular the artist is looking for, then I'll work with them until we're satisfied. I still prefer to make a live show just what it is—*live*!

Young: Not specifically for Tony Bennett, as the show is not designed around a lot of effects. The Waves plug-ins can enhance the whole experience by providing excellent-sounding reverbs and compression when required.

Lonky: Not at all. Rob wants a very live sound.

Chappell: Peter kind of throws that concept out the window—replicating the records. There is studio work, and there is live work. He's now been comparing it recently to his film work and theatrical work. The live work is like theater and the studio work is film. The process of each is very different.

What are the advantages or disadvantages of using plug-ins vs. out-

JOEL LONKY

DN780

board gear for you? Is it an "either/or" situation?

Keppler: To me, the analog outboard hardware versions have always sounded better than their digital virtual cousins for a variety of reasons. However, in a situation where you have so many inputs that need processing, it just becomes impractical to try and carry the racks and racks of outboard gear that could accomplish the task. That, coupled with the need for daily patching and resetting of outboard gear, usually make onboard plug-ins the winner for me. The only place I find outboard gear a better choice consistently is at the monitor position with IEMs, and for that, it really requires the use of an analog desk, as well. The latency factor of simple input-to-output patch on a digital console can have a drastic effect on the way an in-ear mix sounds and feels. Particularly for vocalists, the time delay between bone conduction and the sound arriving in their ears can seriously affect the coherency of their mix. And then if an engineer starts adding a few plug-ins that have some latency—you get the picture. I've noticed the difference with wedge mixes, too. At FOH, quite often you're looking for a little system delay to line the P.A. up with the depth of the stage sound, and with the built-in latency of digital desks and their plug-ins, it's not usually a problem that there's some built-in delay. I find I may only need to add a few more milliseconds onto the system or sometimes none at all.

Young: I was always a big fan of Summit tube compression. The noise floor on some analog gear interfaced with a quiet show like mine makes it very noticeable when you switch to plug-ins and stay in the digital format. The noise floor becomes nonexistent.

Lonky: Actually, I use a combination of both plug-ins and outboard gear. I still use two Eventide H3500 DFX, a TC Electronic 2290 and an MXR GT-OD pedal.

Chappell: For live, no. It's got to be immediate; you've got to be on it and it has to work right then and there. It's a different attitude from recording, where you can spend time focusing on things. Live, it just happens fast and you have to be there for the artist. If you're not, you have to get a different job.

What do you foresee in the future of plug-ins for live? Will there be a time when all an engineer needs is a card full of plug-ins and can pop his/her settings and the card into a console and mix away?

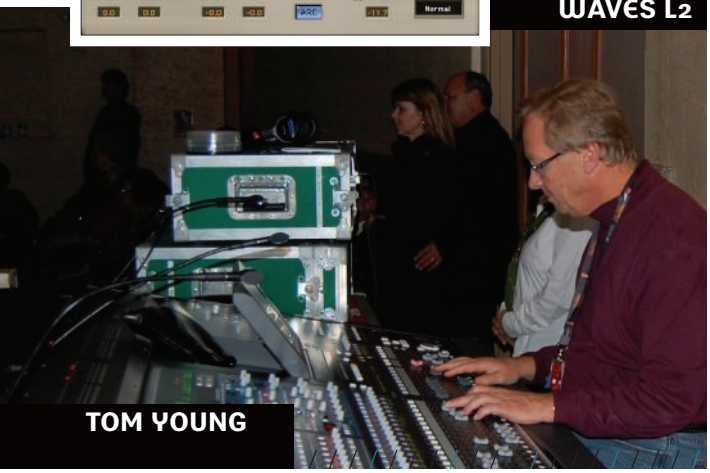
Keppler: I like your idea! It's a bit like what I've been doing with the Avids: load my plug-ins and licenses into the desk and go. I am hoping to take the DiGiCo SD7 on my next tour, and I think I'll be using some different plug-ins with that console than what I've been used to with the Avid desks. I am excited for that because the DiGiCo has the ability to use multiple screens and put the plug-in at the engineer's fingertips on touchscreens—very cool!

Young: Plug-ins are a big part of the acceptance of the digital console format. With choices of studio-quality processors at your fingertips, the mixing engineer's creative palette has limitless possibilities. I am a partner in a regional sound company, ACIR Professional in New Jersey, and can see a time in the near future where the ability to pick up a major sound system for a tour act could be rented locally to eliminate the need of trucking racks/stacks and consoles. If I can recall my sounds on a digital console with a Meyer, L-Acoustic, d&b, NEXO or JBL VerTec P.A. in any major city, the possibilities are limitless.

Lonky: I think we'll see more and more plug-ins, but I think at some point we will reach a saturation point in the market and the companies will find their niches. It's true that the plug-in industry has made it possible for small companies to compete with the "big boys" in regards to the market share. I think this will continue.

I use a USB stick that has all my show files; I have files for Zombie and some other of my other artists on it. I can go anywhere in the world, walk up to the console—this is dependent on getting the correct console—

WAVES L2


TOM YOUNG

stick in the card, load it... bang: my entire last saved show, including all onboard plug-in settings and all other programming, is now at my fingertips in seconds. I have all my shows programmed into Midas, D-Show, Yamaha and a show or two in DiGiCo.

In the late '80s and early '90s, I would try all kinds of things to copy my board settings: tape, pictures with a Polaroid (ever tried to read console settings off one of those without a magnifying glass?), tape recorders, hand writing every setting and switch position on note paper. I embraced the whole digital thing as soon as it was a proven stable mixing platform. The ability to save everything has been a huge leap forward in itself. If you know the console mix is solid, then the save/recall ability allows you to do a small club all the way to a 40,000 to 50,000-seat festival without a soundcheck and not worry about the mix, as long as the P.A. is set up and tuned correctly. It has added tremendous consistency.

Any final thoughts on using plug-ins while mixing?

Keppler: Try mixing without 'em first. Mic choice, mic placement, proper balancing of keyboard patches and track levels from the stage are always better fixes than reaching for plug-ins. Given the list of plug-ins that I use, I guess that makes me a bit of a hypocrite.

Young: Plug-ins simplify your setup and give you more freedom when mixing with the ability to carry your sounds in your pocket. With presets and the ability to instantly recall your console settings and effects and EQ, the future seems very exciting for live sound mixing.

Lonky: Please don't forget to mix using your main tools: your ears! Don't get too carried away with a load of plug-ins on each channel. Less is more.

Chappell: With mixing live, you have to perform. You need to get on it and keep up with that performance coming from Peter and the band. It's constantly changing, and it's not just about recalling the presets and standing there. I jump on the faders and bounce around and get a vibe going. I wouldn't be able to do the same thing years ago that I can now, purely because of the way the plug-ins work. Now give me some analog gear and I'll certainly get along with it and use it. But I'm also talking about instant recallability of shows and presets that we use for Peter's voice. It encourages performance and it encourages his reliability on me to make sure that I've got my act together to deliver each night.

Sarah Benzuly is the managing editor of Mix.

Best Animated Feature and Best Picture

For your consideration

Best Sound Mixing

Supervising Sound Designer, Randy Thom
Re-Recording Mixers, Randy Thom • Gary A. Rizzo

Best Sound Editing

Supervising Sound Editors, Randy Thom • Jonathan Null

"When Hiccup and Toothless take to the sky, we're free of constraint, aware of the space on all sides. At moments like those, the movie makes you feel in every way miles high."

Owen Gleiberman, Entertainment Weekly

DREAMWORKS
HOW TO TRAIN YOUR DRAGON™

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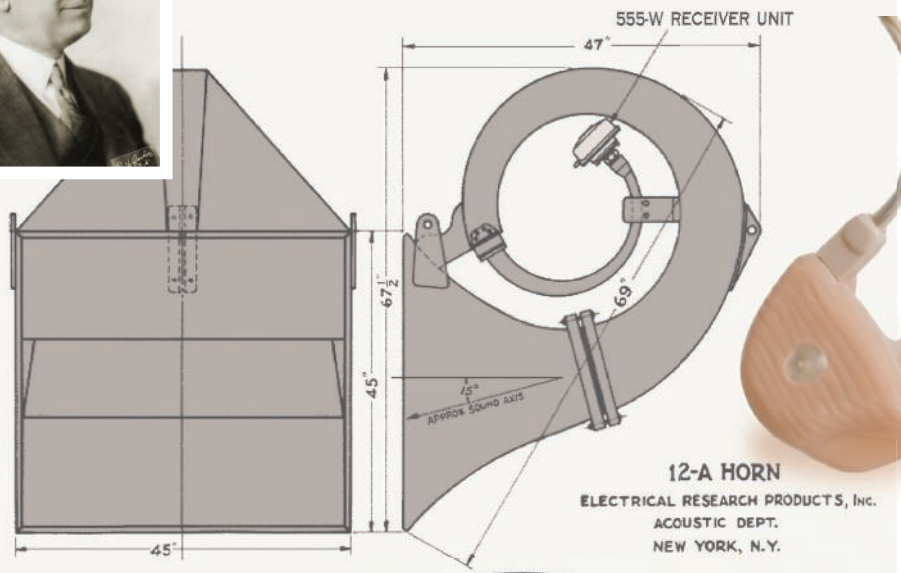
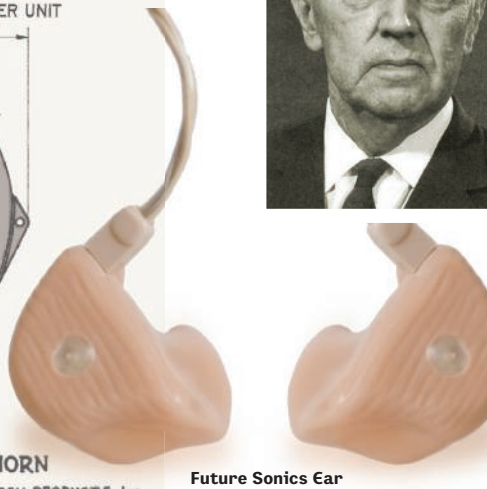
George Ashley Campbell created the first audio filter/bandpass EQ circuit.

Alec Harley Reeves proposed Pulse Code Modulation (PCM).

Western Electric 555-W compression driver mounted on the end of the massive snail-coiled Model 12-A horn

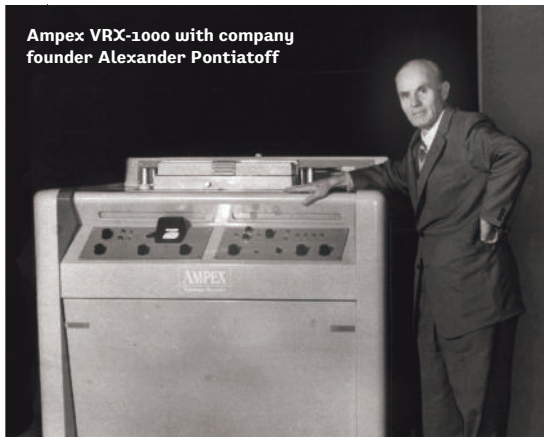




Future Sonics Ear Monitors™

Lansing Manufacturing Iconic monitor with top-mounted multicell horn/compression driver and power supply for supplying voltage to the speaker field coils

Ampex VRX-1000 with company founder Alexander Pontiatoff



2011 TECnology HALL OF FAME

AUDIO INNOVATIONS THAT CHANGED THE (PRO AUDIO) WORLD

By George Petersen

Created by the TEC Foundation for Excellence in Audio, the TECnology Hall of Fame was founded to spotlight key innovations from pro audio history. The inductees are chosen by a committee of industry leaders, engineers, producers, designers, educators, journalists and historians, with the only "rule" being any selection must be at least 10 years old.

Here are brief descriptions of this year's inductees. For detailed information about all of the 95 members of the TECnology Hall of Fame, visit mixonline.com/TECnology-Hall-of-Fame or tecfoundation.org.

Bil VornDick, Ronnie McCoury and the Miktek™ C5.

"The Miktek C5 is as warm and fuzzy as Bil VornDick."

Ronnie McCoury,
Mandolin Legend

"When I listened to the C5, the diaphragm seemed to be floating. I didn't hear the proximity I've heard on other mics when the SPL's were increased. Reminded me of my favorite vintage pencils."

Bil VornDick, *Engineer and Producer. Alison Krauss, Bob Dylan, Bela Fleck, Jerry Douglas, T-Bone Burnett, Mark O'Connor, Ralph Standley.*

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1915
First Audio Filter/ Bandpass EQ Circuit

George Ashley Campbell joined AT&T's engineering department in 1897. His initial research was in improving the performance of long-distance telephone lines. He later focused his research on audio filter development, creating the classic L-C (inductor and capacitor) filters that are widely used in analog tone control and filtering circuits.

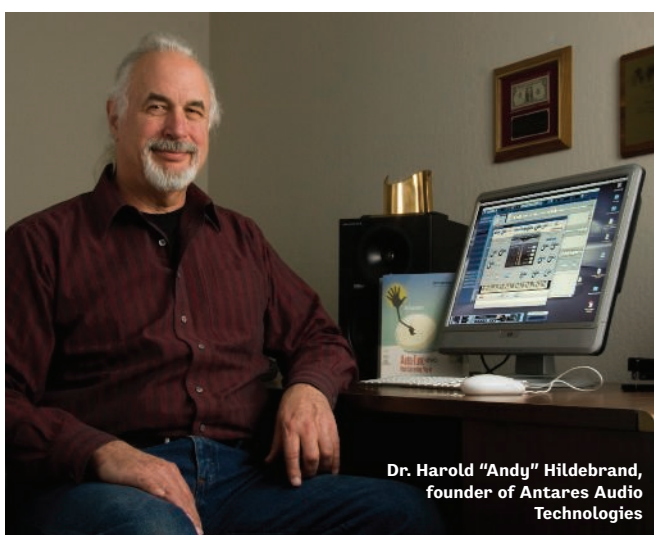
Campbell's concept of combining simple lowpass and highpass filters resulted in a more complex bandpass filter (ideal for emphasizing voice intelligibility over telephone lines), documented in Campbell's 1915 Electric Wave-Filter patent. Beyond simple analog filtering chores, the Wave Filter also paved the way for multiplexing—the ability to run multiple voice conversations over a single phone wire. Ironically, this foundation of the modern audio equalizer was laid years before sound systems or even electrical recording existed. But the basics of audio filtering had been established and the groundwork was ready to become part of a revolution yet to come.

1926
Western Electric 555-W
First Compression Driver

In 1926, talking motion-picture development was well under way, but with the low-power amps available at the time, high-output reproduction was pretty much out of the question. Given that premise, two Bell Labs engineers, Edward C. Wente and Albert L. Thuras, offered what they described as an acoustical device using a "light piston-type diaphragm" driven by a light rigid coil. The diaphragm/voice coil was set within a dense electromagnetic structure and designed to mount onto a horn.

The resulting Western Electric Model 555-w "receiver" was surprisingly close to modern high-frequency compression drivers, with its 0.002-inch thin aluminum-dome diaphragm, corrugated surround, phase plug and threaded mount for fitting the driver on a variety of horns. Shown on the previous page is the 555-w mounted on a Model 12-A horn having a 45x45-inch throat opening and an 11-foot exponentially tapered pathway. The driver/horn combination proved highly efficient, achieving high SPLs from low-powered amps, whether used alone or with cone woofers for extended low-frequency performance.

Sennheiser MD 421


Dr. Harold "Andy" Hildebrand, founder of Antares Audio Technologies

1937
Lansing Iconic
First Recording Studio Monitor

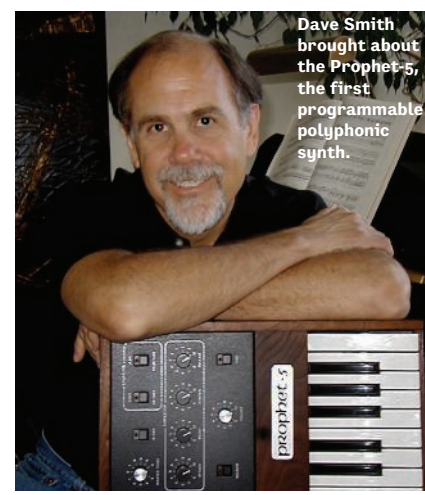
James B. Lansing founded Lansing Manufacturing Company in 1927, initially building loudspeakers for radios. But with the rise of talking motion pictures, he supplied woofers, compression drivers and manufacturing for the Shearer Horn, the first large-scale, high-fidelity system for theater sound reproduction. For film mix stages, he developed the huge Monitor System 500, pairing a single 15-driver in a "W" box and a sizeable multicell horn.

In 1937, he created the Lansing Iconic, the first recording studio monitor, a compact (40x25x18-inch) two-way system with a 15-inch model 815 woofer in a vented, bass-reflex enclosure crossed to an 801 driver on an 808 multicell horn, offering a 30 to 15k Hz response. Both drivers were field-coil (electromagnet) designs, requiring an external power supply. Later models were available with permanent magnets, as well as home versions. Among the many fans of the Iconic system was Les Paul, who used them in his recording studio.

1939
Pulse Code Modulation

Discoveries occasionally occur long before the current technology is ready to accept and support them. This is certainly the case with British physicist Alec Harley Reeves, who proposed Pulse Code Modulation (PCM), one of the cornerstone principles of digital audio, more than four decades before the first commercial digital audio recorder.

In his 1939 patent for a Signaling System, Reeves describes a "system for transmitting complex waveforms—for example, speech—wherein the waveform is scanned at the transmitter at predetermined instants" and the "amplitude range of the waveform to be transmitted is divided into a finite number of predetermined ampli-



Dave Smith brought about the Prophet-5, the first programmable polyphonic synth.


Waves founders Gilad Keren (left) and Meir Shaashua

tude values according to the fidelity required." He also proposed a tube-based PCM circuit, but this was in 1939—well before the introduction of transistors, ICs or microprocessors—and Reeves' PCM proposal remained mostly unused until the 1950s, when it was employed in low-fidelity applications such as telephone systems.

1956
Ampex VRX-1000
First Commercial Video Recorder

The concept for the videotape recorder hails from Bing Crosby's audio engineer, Jack Mullin, who brought the first German tape recorders to America after World War II. In 1946, Crosby fronted Ampex the capital to begin building audio tape recorders. Four years later, with the advent of television, Mullin talked to Crosby about the notion of recording TV programs on tape.

In 1952, Ampex began its VTR project, with Charles Ginsburg leading a team that included Charles Anderson, Alex Maxey, Fred Pfost, Shelby Henderson and a 19-year old kid named Ray Dolby. But rather than a fixed-head approach, Ginsburg pursued the now-standard concept of rotary tape heads, proposed by engineer/inventor Marvin Camras. The first production unit (shown on page 16 with Ampex founder Alex M. Pontiatoff) was sold to CBS for tape-delay broadcasts of news broadcasts in November 1956. The VRX-1000 was $50,000 (an enormous sum in the mid-1950s), but the days of live broadcasts were numbered and television production would never be the same.

1960
Sennheiser MD 421

In 1959, company founder Dr. Fritz Sennheiser worked with design engineers Paul-Friedrich Warning and Johann-Friedrich Fischer to take its successful MD-21 omnidirectional microphone to the next step. The project was the MD 421, a rugged dynamic mic with a tight cardioid pattern that was consistent at nearly all frequencies, with high SPL handling (up to 175 dB) and a five-step LF attenuation circuit for tweaking bass response.

Low-frequency directivity was accomplished using four vents near the rear of the mic, felt damping within the mic body, internal damping in the capsule and a bass pre-emphasis tube for airflow between the capsule and an air chamber in the mic body. A cut-away diagram of an MD 421 resembles a jet engine more than a dynamic mic. The body was molded of DuPont Delrin resin, and 50 years later the MD 421 remains one of the few pro audio mics featuring a molded (now glass-composite) body. The MD 421 was launched at Germany's Hannover Fair in 1960; five decades later, it remains in use in studios, stages and broadcast facilties worldwide.

1978
Sequential Circuits Prophet-5
First Programmable Polyphonic Synth

An analog synth that could play five notes simultaneously and could store a whopping 40 programs (later expanded to 120) might not create headlines today, but the Sequential Circuits Prophet-5 was a sensation in its time, and it's still a classic.

Company founder/chief designer Dave Smith was excited about combining the sound-generation capabilities of the new Solid State Music ICs that reduced the major functions of analog filters and synthesis (VCO, VCA, VCF) into single chipsets, with the new Z80 microprocessor for storing/recalling synth patches. Smith worked with John Bowen (and some consulting from E-mu founder Dave Rossum), and the Prophet-5 project was completed in just six months—an amazing accomplishment. On its debut at the Winter NAMM show in January 1978, the Prophet-5 was nothing less than a hit. The Prophet-5 stayed in production until the mid-1980s with approximately 8,000 units sold. Today, Smith continues to create award-winning analog synthesizers with his company, Dave Smith Instruments.

1985
Future Sonics Ear Monitors
First In-Ear Monitoring System

Three decades ago, Marty Garcia had a vision of a different way of stage monitoring, where artists would wear earpieces carrying a personal monitor mix. At first, Garcia used consumer earbuds, but he soon saw the need for a more specialized approach and started working with audiologists to supply custom ear molds.

In 1985, he began developing designs for Ear Monitors® and Ears™-brand earphone monitors. That same year, Todd Rundgren used Future Sonics products on his Utopia tour; it was the first wedgeless stage with all bandmembers wearing Garcia's Ear Monitors. Garcia founded Future Sonics in 1991, and word about his Ear Monitors spread as major artists realized the advantages of reduced freight requirements, cleaner stages, lower onstage volume and better monitor mixes.

1992
Waves Q10 Paragraphic EQ
First Audio Plug-In

The concept of plug-ins—additions that add functionality to established programs—dates back to text editors running on Univac mainframes in the 1970s. By 1991, plug-ins came on the scene,

mainly as filter effects sets for paint and photo-manipulation software. Although few realized it then, the audio world was about to see some rather significant changes in the years to come.

At AES 1992, Waves unveiled the first audio plug-in. Created by founders producer Gilad Keren and musician Meir Shaashua (both having extensive math and engineering backgrounds), the Q10 Paragraphic Equalizer was a little before its time. It ran on Digidesign's Sound Tools and early Pro Tools systems where only a single plug-in could run at a time. Two years later, the advent of TDM opened the possibility of multiple plug-ins on a single session, and software-based signal processing began evolving into an integral part of modern audio production. Today, the Q10 is still going strong (now updated for multiple platforms and 24-bit/192kHz resolution) and is offered in Waves' high-end production bundles.

1997
Antares Auto-Tune

Antares Audio Technologies was founded in 1990 as Jupiter Systems by Dr. Harold "Andy" Hildebrand, a geophysical scientist who created the first stand-alone workstation for seismic data interpretation. Merging his knowledge of DSP, audio and music composition, in 1994 Jupiter developed MDT™ (Multiband Dynamics Tool), one of the first commercial plug-ins for Pro Tools.

The breakthrough came with Antares' 1997 Auto-Tune plug-in. Able to correct pitch problems in vocals and solo instruments, it was embroiled in controversy once the general public was aware of it. The erroneous impression was that automated pitch correction meant anyone could perform with perfect pitch. However, Auto-Tune was hardly different from punching a passage 75 times until it's right, comping a final vocal/solo or cut-and-paste editing to replace a flawed chorus with a good one. Now in its seventh generation, Auto-Tune is still popular, not only for fixing a note or two, but sometimes to provide an exaggerated perspective or to bring musicality to a narrated vocal track.

Note: This year's TECnology Hall of Fame presentation takes place January 15, at 4 p.m., in Room 204B at the Winter NAMM show. All NAMM attendees are welcome. III

Mix's George Petersen is the director of the TECnology Hall of Fame, and an engineer/producer whose most recent project is Voodooville: A Celebration of New Orleans, *a 5.1 surround-audio DVD of jazz/funk/blues/Creole music.*

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Photos compiled from previous International CES shows.

PHOTO: NEIL KRUG

From left: Mikey Way, Gerard Way, Ray Toro and Frank Iero.

By Blair Jackson

My Chemical Romance

ROCKIN' INTO THE FUTURE WITH THE 'KILLJOYS'

It's been four years since My Chemical Romance (MCR) released their massively popular, death-obsessed concept album, *The Black Parade*, which firmly established the theatrical L.A.-based band (originally from New Jersey) as master purveyors of their own idiosyncratic blend of punk, pop, metal and alternative styles. They've been compared to everyone from Queen to Smashing Pumpkins to Pink Floyd to Green Day, but there's no question that MCR also have their own unique vision and approach, thanks in large part to their restless and endlessly creative leader, Gerard Way, an artist-turned-singer/songwriter whose imagination is always stoked by his visual inclinations and for whom the term "high concept" is never an understatement.

Take MCR's latest album, *Danger Days: The True Lives of the Fabulous Killjoys*. It is a collection of tunes that are loosely linked by an overarching story about a band (The Killjoys) in the year 2019 and their battles with evil corporate types and laser-wielding baddies in vampire masks known as Draculoids. (This is either ironic or exploitative, given the fact that MCR loudly turned down the opportunity to place a track on the *The Twilight Saga: New Moon* soundtrack and closes *Danger Days* with a pointedly critical song called "Vampire Money.") There are already big-budget conceptual videos for a couple of the catchier tunes on *Danger Days* out there ("Na Na Na" and "SING," both featuring lots of laser-gun action, chases and barely comprehensible mayhem), and Gerard Way is also working on a graphic-novel version of the story—the one-time intern at DC

Comics' Vertigo imprint previously won a prestigious comics award with Brazilian artist Gabriel Bá for their work on a series called *The Umbrella Academy*.

It wasn't supposed to be like this. When the band got home from two years of touring behind the gaudy, Rob Cavallo–produced *Black Parade*—a giant production that took them all over the world and left them crispy around the edges—they were determined to bang out a simpler, more stripped-down rock 'n' roll album this time 'round. They went into the studio with Brendan O'Brien (STP, Pearl Jam, Rage Against the Machine, Springsteen, et al) and did exactly that—but were seized by second thoughts once the album was mixed and essentially done. Something didn't quite feel right to the band, so they turned back to Cavallo and engineer Doug McKean (who had worked on *Black Parade* and many of Cavallo's productions, including Green Day's *American Idiot* and discs for the Goo Goo Dolls, Avril Lavigne and many others) to help rework a couple of songs.

"Initially, they asked, 'Can you help us mix this?'" says Cavallo, who in addition to being a top-flight producer is now also the chairman of Warner Bros. Records, MCR's label. "I said, 'No, because it's already mixed; it sounds fine.' 'Well, can we cut some new tunes?' I said, 'Absolutely, we can do that.' And once we started cutting new songs, that was pretty much it. Then they realized there was a difference in terms of the kind of vibe we were getting together. Then that led to them re-cutting the whole record. But I did not go in with the idea of re-cutting the album."

Adds McKean (who's now a staff engineer for Warner Bros.), "The band was definitely vocal about wanting to experiment more than they had [on the earlier sessions] and more than they had on *Black Parade*. They wanted to do the process in a really different way. On *Black Parade*, they went to a rehearsal room, and I was there for a little bit of it recording their rehearsals, and a lot of songs were completely written before they came into the studio [Eldorado Sound] and then just elaborated on. For this record, they came in wanting to experiment on a couple of songs they'd already written, but it turned into them writing a whole bunch of new songs in the studio from scratch."

That process can go either way, I mention to McKean. "Yes, it can," he replies, "but these guys were great. In fact, it was actually the best experience I've ever had of people writing songs in the studio because that can really bog down. And one reason it went so well is there's no one guy in the band who is the musical boss, so to speak—they *all* have a lot of input. Ray [Toro, lead guitarist] is definitely a leader in that band, and Frank [Iero, guitar] has his own vibe of what he wants to do, as does Mikey [Way, Gerard's bassist brother], and, of course, Gerard usually has ideas of what he's looking for."

Producer Rob Cavallo is also chairman of Warner Bros. Records, MCR's label.

"The writing would turn into the record immediately—all in one shot," Cavallo elaborates. "Somebody would come up with a riff or sing something, and we'd just start putting it together. At the demo stage, it might be, 'Here's a single guitar track,' or, 'Here's a drum loop,' or, 'Here's how the piano's going to go,' or, 'Ray has the riff—let's get John [Micili, a top studio drummer who replaced MCR skinsman Bob Bryar a few days into the Cavallo/McKean sessions] to play the drums and get Frank and Mikey in here now.' There was no rhyme or reason to it. Anybody could start anything, and if it was good, we turned it into a song. We probably had 30 song starts that were brand-new things, and some of the ones that didn't get fully developed this time are things I imagine we'll go and get for the future because there were a lot of cool things we left by the side that didn't fit in with this record but are still really good. But if we caught the momentum on something, we'd dig in and finish it."

"Sometimes Gerard would be sitting in the back of the control room with headphones fiddling around with a keyboard," McKean adds. "We might even be working on a different song and he'd be listening to sounds, and he'd just say, 'Hey, I have this idea I want to put down so we don't forget it,' and I'd record one little thing and then the other guys might come in and kind of jam on an idea for a while and that would become the track or part of the track. On a lot of the initial jams, we took some parts and edited them and sometimes re-recorded them, and then later someone might say, 'Great, I want this new section to have a different beat,' or something, and it would grow organically out of that process."

This time out, the album was recorded in Cavallo's state-of-the-art home studio, known as Lightning Sound, in Hidden Hills, northwest of downtown L.A. Cavallo says the studio boasts a nice-sounding live room, measuring about 20x15x12, with wood floors, no parallel surfaces and diffusers on the ceiling above where the drums are placed. "Allen Sides helped me out with that room," he notes. The control room "probably has the biggest, most loaded Pro Tools system you've ever seen; every card is filled, we've got all the cool plug-ins. At the same time, we have all the greatest outboard gear—every mic pre anyone could ever want, including an assortment of old Neves—1073s, V76s—and API 550As and Bs, plus old analog compressors like the RCA '50s-era ones, the Presto [6A] lathe-cutting compressors, new versions of some of the old Beatles stuff like the Chandler."

McKean, who helped Cavallo equip the studio, notes, "I owned a lot of vintage gear so I came in with a ton of vintage mics and I have an old Neve console—a Melbourne Series

Engineer Doug McKean: "[My Chemical Romance] was definitely vocal about wanting to experiment more than they had [on the earlier sessions] and more than they had on *Black Parade*."

broadcast board—and really esoteric compressors, and Rob had a ton of instruments and amplifiers. Rob is like a genius guitar guy, and he and Ray work together really well. There are a lot of different colors of guitars through different effects, and a lot of layers, but it's really important to him that you can still hear the character of each sound and it's not just a big mush. We also had a lot of interesting keyboards on this album."

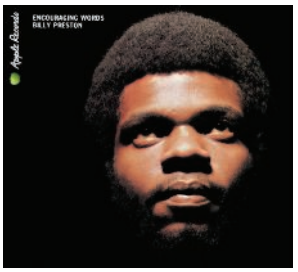
Indeed, one of the signatures of *Danger Days* is the extensive and highly imaginative use of various keyboards throughout the album, from piano (sometimes played by Cavallo) to old analog synths to more modern instruments. Jamie Muhoberac—who was in a prog-rock band with Cavallo nearly 30 years ago, and has worked on Cavallo productions on and off for nearly 20 years—is credited for "keyboards and sound design" because of his large role on the album. "He can play anything," the producer says. "His taste is fantastic and he really does special things every time." McKean adds, "He's all over the record, and in some cases I actually premixed his parts [before the final mix]—like on 'The Only Hope for Me Is You,' that would have started with about 40 tracks of keyboards just for that intro and I would have premixed it down to something like eight stereo pairs." Super-mixer Chris Lord-Alge, who also worked on *The Black Parade*, once again did the final polishing for *Danger Days* at his studio, Mix L.A.

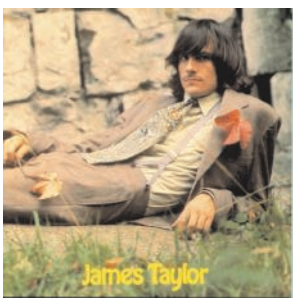
Asked whether the wild and futuristic story concept ultimately affected the sonics of the album, Cavallo says, "Definitely! Gerard described for me this world of the future and all these different chaos theories about what the world had come to—sort of post-World War III—and he wove a really interesting story with this band from that time. So we did start to say, 'We're this band from the future,' and we imagined ourselves being in that world, dealing with these issues. So that's why there are those sounds. We were using our imagination. We're in the year 2019. What kind of sounds would we make?

"They were really into experimenting and that made it a lot of fun. They were saying, 'We don't want to have any limitations of what we can do to make a rock record. We want it to be danceable and we're not afraid of electronics and synthesizers in rock.' So that's why you're hearing that."

"They want to go with whatever feels good," McKean adds. "They're not afraid to do really poppy things. There are definitely some bands that never want to have that element in their music, but these guys don't seem to have any of those sorts of hangups. They were up for everything." III

Apple Records Remasters—Classic Albums From James Taylor, Billy Preston and More





Now out, from the team that remastered The Beatles' catalog: *The Apple Remasters*. The Beatles' legendary label has reissued 15 of its best-known albums, beautifully remastered with original artwork and many bonus tracks. These albums will also be available as digital downloads.

The reissues include original albums from Badfinger, Mary Hopkins, James Taylor, Billy Preston and more. Alan Rouse, who supervised the remastering of The Beatles' catalog, oversaw this project. The remastering engineers included Steve Rooke, Sam O'Kell, Alex Wharton, Sean Magee, Simon Gibson and Guy Massey, who took time to describe the technical approach the team developed while working on The Beatles reissues at Abbey Road: "We used the original mix masters, not production masters, [which are essentially EQ'd and possibly compressed copies of the mix masters], where appropriate," Massey says. "For the most part, the tapes were in pretty good condition. Most were ¼-inch analog, various stock—mostly 15 ips non-Dolby, some Dolby-A, some CCIR, some NAB.

"The transfers were very important," he continues. "We went through lots of different permutations of tape machines/op amps/test tones/A-to-D converters when embarking on The Beatles' back catalog. The one we ended up with was the chain we used with the Apple catalog—a Studer A80 ¼-inch analog tape machine to a Prism ADA-8XR converter to Pro Tools at 192kHz/24-bit WAV format. If no tones were present, which they usually weren't, we would use house tones to align the machines; check azimuth by ear individually between tracks, sides, albums; and transfer tracks one by one, cleaning the tape path and heads between each transfer.

"The speed of the tape machine was checked continuously. Mono headblocks were used for full-track mono when needed. CEDAR was employed to remove anomalies like clicks or pops, bad edits, et cetera. These were then cut into the new 192/24-bit masters to create our new master file. We then captured the tracks into a SADiE mastering computer: analog out Prism ADA-8X into the TG mastering console, then EQ, then SADiE capture. At this point, very subtle limiting would be applied and then we'd have the new master."

As for the bonus material, Massey says that those tracks were sourced by Mike Heatley and Andy Davies and mixed in Studio 3 at Abbey Road by Sam O'Kell. "They would have been transferred at 24/192 using the same converters and mixed via the SSL J Series console in Studio 3," says Massey, who also did some archiving and restoration work related to the recent reissues of John Lennon's back catalog. The Lennon reissues were remastered by Paul Hicks and Sean Magee. Up next for Rouse, O'Kell, Rooke and Massey is a series of Paul McCartney reissues.

"[Last year] was a busy year," Massey says, "with finishing the Apple project, starting the McCartney one, as well as recording and mixing *The Coral* album with John Leckie, recording the new James Blunt album with Steve Robson, and working with some young, exciting bands." — *Rick Clark*

Studio Profile Parlor Productions

It was in the mid-1990s when longtime songwriting/producing/musician team Larry Sheridan and Robin Ruddy decided they wanted to build a "serious" recording studio. They had been recording songs for nearly 30 years in various recording scenarios, and by the time they started their publishing company, Best Built Songs (www.bestbuiltsongs.com), in 1994, the two were working in an 11x11-foot room that felt like it was shrinking fast as they added equipment. "We wanted to do a lot more with recording, songwriting and artist development, so we started looking for a property that would accommodate all of our goals," says Sheridan.

It took four years of searching for them to find the one-story, outdated brick house on Nashville's Music Row that eventually became the home of Parlor Productions (www.parlorproductions.com). "After looking at everything very thoroughly, we came to the conclusion that this was the property that would be best in terms of location, value and real estate investment," Ruddy says. Though the property, which had been used by Randy Travis as a storage shed for concert gear, was "junky and filled with rotten wood," the 1928 home also had a special charm. Ruddy and Sheridan then embarked upon extensive renovations to transform the 1,600-square-foot house into a two-sto-

The Parlor Productions tracking room has the look and feel of a Victorian home while the control room is packed with state-of-the-art equipment.

Music Mix Mobile—Location Mixing on 'The Colbert Report'

Since Music Mix Mobile went online in 2008, the company's super-group of engineers—Joel Singer, Jay Vicari, John Harris and Mitch Makentansky on the East Coast, and Mark Linnett and Bob Wartinbee out West—have provided remote recording/mixing/broadcast audio for scores of high-profile projects. When we checked in with chief engineer/partner Singer recently, they'd just come off mixing the CMAs, Latin Grammys and FUSE presents Elton John and Leon Russell. Singer was also getting ready for John Legend on *The Colbert Report*.

Guitarist Alex Lifeson, bassist/singer Geddy Lee and drummer Neil Peart of Rush maintain their composure onstage with Stephen Colbert.

PHOTO: KRIS LONG

"We've been working with *The Colbert Report* for a few years," Singer says. "Since they are not normally a music show, when they have acts requiring this, we bring in one of our flight-pack systems." Performances have included Cee Lo Green, Pavement and a notable appearance by Rush back in '08.

When they mix music for *The Colbert Report* or Jon Stewart's *The Daily Show*, another frequent client, Music Mix Mobile uses a portable Pro Tools-based mix/record system with D-Command control surface, Waves plug-ins and Genelec 8250 monitors; this gets set up in an available green room.

"We've pre-cabled many things at the Colbert show, which makes it easier for the production and us. All of our connections to the stage are done using MADI. We've developed a great workflow with the Colbert crew, so we're up and running within 45 minutes of getting in the building. About 3 or 4 o'clock, we do a line check/soundcheck; between 4 and 5, we do a real camera-block with the band, then the show anywhere between 6 and 7. Normally, it's two songs: one for air and a second that's stored for a 'best of' or Internet release," Singer explains. "The A1, Todd Kilponen, does a great job mixing production and makes it easy for us to get our job done."

Music Mix Mobile was also asked to handle music performances at Colbert and Stewart's Rally to Restore Sanity and/or Fear in Washington, D.C., in October: "A quarter-of-a-million people showed up and there was a lot of music, and a short amount of time to get it all on the air," says Singer. "It was a very hectic few days."

—*Barbara Schultz*

Design FX Captures Pinktober Fundraiser

PHOTO: HARD ROCK INTERNATIONAL/RENE MACURA

Melissa Etheridge's benefit performance at the Hard Rock Café was captured and mixed by Scott Peets and Design FX.

Multi-Platinum artist and breast cancer survivor Melissa Etheridge helped kick off breast cancer awareness month, "Pinktober," this past fall with a benefit concert at the Hard Rock Café in Hollywood. Opening was Crystal Bowersox, last year's *American Idol* runner up, who also joined Etheridge onstage for a couple of songs. The show was recorded and mixed for Webcast by Scott Peets of Design FX.

"At the Hard Rock Cafe in Hollywood, there's no place to park a truck," Peets says. "So we brought in one of our flightpacks—a rack of ATI preamps and a Pro Tools rig. Sound Image dropped us a splitter just like they normally would, and ran it to about 10 feet from where the monitor engineer, Jon Schmicke, was and plugged into the preamps there. When we're in our truck, we've got a tech onstage wearing a headset who coordinates the soundcheck with me, but in this case, we had eye contact with Jon, and that made things go really smooth."

Peets took the tracks back to the Design FX truck to mix on the custom API console, using a variety of outboard gear and plug-ins. "I mix and match, but mostly I'll use plug-ins for cleanup and hardware for color," says Peets, who also mixed an Etheridge/Bowersox duet of the song "I Run for Life," for benefit sale on iTunes. "The biggest compromise recording a live performance on a small stage like the one at this Hardrock is leakage," Peets says. "Your vocal mic is now part of your snare sound, for example. Blending it all together is like putting together a sonic puzzle made up of frequencies rather than small pieces of cardboard."

—*Barbara Schultz*

by Lisa Horan

ry, 4,200-square-foot recording studio facility and office space. "The only thing on the outside that we kept was the brick façade and the front porch," explains Sheridan.

With the help of studio designer Michael Cronin, Sheridan and Ruddy developed Parlor Productions to retain the old-fashioned look of the original house while incorporating high-tech infrastructure and acoustics. Design elements include antique fabrics, rich hardwood floors and brass chandeliers in the tracking room, complementing a gear list that today includes an Avid/Focusrite Control|24 console; Pro Tools HD3; Alesis MasterLink; Mackie HR824 powered monitors; mic pre's from API, Drawner, Trident and Vintech; and a host of outboard, plug-ins and microphones.

One of the keys to Parlor Productions' ongoing success has been the office rental income generated by the second-story addition. Over the years, the studio's homey-meets-high-tech approach has attracted such country stars as John Michael Montgomery and Kenny Chesney, along with major artists in contemporary Christian music like Amy Grant, Vince Gill, Point of Grace and Stephen Curtis Chapman.

"I love the fact that I am able to sit in the producer's chair of the space that we created and work with a band of hot-shot session players in the studio and build what I record into something that sounds like a record. It is truly an emotional high," Sheridan says.

This profile is excerpted from Lisa Horan's monthly online column, "Confessions of a Small Working Studio." Read more about Parlor Productions and other facilities at mixonline.com. III

CLASSIC TRACKS

Bruddah Iz

"SOMEWHERE OVER THE RAINBOW/ WHAT A WONDERFUL WORLD"

By Blair Jackson

His full name was Israel Kamakawiwo'ole, but almost everyone called him "Iz" or "Bruddah Iz" ("Bruddah" being pidgin for "Brother"). A gentle giant who at one point weighed more than 750 pounds, he is responsible for the all-time best-selling record by a Hawaiian artist—a simple but haunting voice-and-ukulele medley of two standards, one from the 1930s and the other from the 1960s: Howard Arlen and E.Y. Harburg's "Somewhere Over the Rainbow," written for the 1939 film *The Wizard of Oz*, was most famously sung by Judy Garland; and Bob Thiele and George D. Weiss' "What a Wonderful World" was a late-life hit for Louis Armstrong in 1968 when it hit Number One on the UK singles chart, and then was a posthumous Top 10 success in the U.S. following Armstrong's death in 1971. Iz's version first appeared on his 1993 album, *Facing Future*, which went on to become the first Hawaiian album to top 1 million in U.S. sales, and the single was a hit in a number of other countries and has had an extraordinary life the past few years as a digital download, with more than two million copies sold. It has also been featured in several films, TV shows and commercials.

Iz was born in Honolulu in 1959 and grew up in the Kaimuki area of the city (north of Diamond Head crater). He first started playing music at the age of 11 with his older brother, Skippy. When Iz's parents took jobs working at a Waikiki music club called Steamboats (in non-musical capacities) in the early '70s, the brothers became even more fascinated by Hawaiian folk music, which was enjoying a serious renaissance on the Islands around that time, thanks to acts like the highly influential Sons of Hawaii (who had a weekly gig at Steamboats), the Sunday Manoa and many others.

As a young teen, Iz was sometimes called up onstage to play ukulele and sing with the greats who passed through the club. Even at a young age he was very large; in fact, it ran in the family—his father was one of those enormous guys who got nicknamed "Tiny," and Skippy was also very heavy. As nearly full-blooded native Hawaiians (rare today; Hawaii has truly been a melting pot), the Kamakawiwo'ole family embraced the newfound pride in the Hawaiian language and the old music of the Islands, and later, Iz would be quite vocal in his support of the Hawaiian sovereignty movement.

In 1973, when Iz was 14, the family moved to Makaha, a sleepy but beautiful white-sand beach community on the western shore of Oahu, and it was there that both Iz and Skippy started their first serious musical endeavor: a five-piece traditional group called the Makaha Sons of Ni'ihau. Formed in 1976, they quickly became one of the most popular groups in the Islands, playing a mix of songs in Hawaiian dating back to Queen Liliuokalani, hapa haole (half-white) tunes and a few more modern songs in both English and Hawaiian. The original version of the band lasted until 1982, when Skippy died of a heart attack at the age of just 28. Iz and the others soldiered on; though by the late '80s, Iz was increasingly having weight-related health problems himself, which, coupled with his abuse of both hard drugs and alcohol, made him an occasionally unreliable bandmember. He also had "issues" with the group's management, which led to his eventual departure to become a solo act in the early '90s.

The story of this month's "Classic Track" begins on a night in 1988, with an engineer named Milan Bertosa. The Chicago native had been active in Windy City recording for a number of years—based out of Tanglewood Recording, among other studios—but by 1987 he was looking for a change of pace. So he and a partner packed up their equipment and moved to Hawaii and opened what immediately became a top facility in the state, Audio Resources Honolulu. Bertosa had only been in Hawaii a few months when he got a fateful telephone call one night:

"I'd just finished this hellish session with a girl group, recording one syllable at a time for hours, and I'm wrapping cables when the phone rings. It's 3:30 in the morning and all I want to do is go home, but there's this jacked-up client who I've been doing some work with saying, 'I'm at this club called Sparky's with this guy named Israel Kaloka-loka-loka-loka-loka'—I had no idea what the name was—'and he wants to come and do a demo right now.' I'm like, 'I'd be happy to record him; call me tomorrow.' He says, 'No, no!' and then he puts Iz on the phone, and he's got this soft voice and

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he's really polite and really sweet, kind of the embodiment of what a nice Hawaiian person is like. I finally say, 'Okay, you've got 15 minutes to get here. When you get here, you've got a half-hour and then it'll be 4:30 and I'm done.'

"So he shows up—biggest human being I've ever met. And we record the songs 'Somewhere Over the Rainbow' and 'What a Wonderful World,' just Iz and his uke, two mics, one take. Beautiful. The other song he recorded that night was called 'White Sandy Beach' and he overdubbed another uke, so that was three tracks.

"I recorded dry to 2-inch 24-track tape on an MCI JH-24 or JH-16, through the studio's Harrison MR4. The mics were Neumann KM84s, one on uke about a foot above the instrument, up the neck a little [so it wasn't pointing directly at the sound hole and picking up what Bertosa calls the ukulele's characteristic "bark note"], one on vox. Mic pre's were in the Harrison MR4. EQ was minimal—maybe a light boost above 10k, highpass to get rid of unnecessary subs and most likely a small dip around 400 Hz on the uke mic. I may have used a UREI LA-4 on the vocal mic going to tape. I mixed the next morning using a blue Orban stereo compressor with an Idle function that kept the breaths from being sucked up too much. Reverb was courtesy of a Klark-Teknik DN780, which was a great digital box." Bertosa mixed to both ¼-inch analog and Sony 2500 DAT, "and then the 2-inch tape was wiped—after all, it was just a demo! Doh!," he says with a laugh. "I believe that the version that went to mastering [years later] was the DAT."

The tape sat in Audio Resources' storage library for five years before it was used. In the meantime, Iz launched his solo career (while still maintaining ties with the Makaha Sons for a while) with an eclectic 1990 album called *Ka 'Ano'i*, which actually included a version of "Somewhere Over the Rainbow/What a Wonderful World," but done in a fully produced "Jawaiian" style—a blend of reggae and Hawaiian that has long been extremely popular in the Islands.

It wasn't until 1992, when Iz went into Audio Resources with Bertosa and Mountain Apple Records producer Jon De Mello to make a second album—*Facing Future*—that the idea surfaced to use the old demo recording, as is. The medley's beauty lay in its simplicity: Iz's soaring tenor sounds vulnerable yet optimistic; the recording is intimate—you can even hear the light clicking of Iz's fingernails on the ukulele's strings and soundboard. At the top of the song he quietly dedicates the tune to Hawaiian folk music legend (and sometime member of the Sons of Hawaii) Gabby Pahinui.

Released in 1993, *Facing Future* was an immediate smash in Hawaii, with several different tunes from the disc dominating the local airwaves for months, including the "Rainbow/Wonderful World" medley, a tune associated with the Makaha Sons called "Hawaii '78," and Iz's wonderful Jawaiian take (via Toots Hibbert's reggae version) on John Denver's "Take Me Home Country Road," which has "west Makaha" substituting for "West Virginia."

Alas, Iz's soaring weight eventually killed him—he died of heart failure in 1997 at age 37. However, as occasionally happens, death was just the beginning for what has become a superstar career. He was already lionized in Hawaii, and then, slowly but surely, his music started spreading eastward. "Rainbow/Wonderful World" was used in a national TV commercial for eToys, and then was picked up for the soundtracks of *Meet Joe Black* (1998) and *Finding Forrester* (2000), and later appeared prominently on a key episode of the hit TV series *ER* and in the soundtrack for the romantic comedy movie *50 First Dates* (2004). Soon it became a top-selling digital track, which led to its re-release as a single and more TV and commercial uses.

Not bad for a 15-minute session. "After that 15 minutes," says Bertosa, who has worked on recent albums with uke phenom Jake Shimabukuro. "I was thinking, 'This is what I'm supposed to be doing for a living; not that other stuff, one syllable at a time." III

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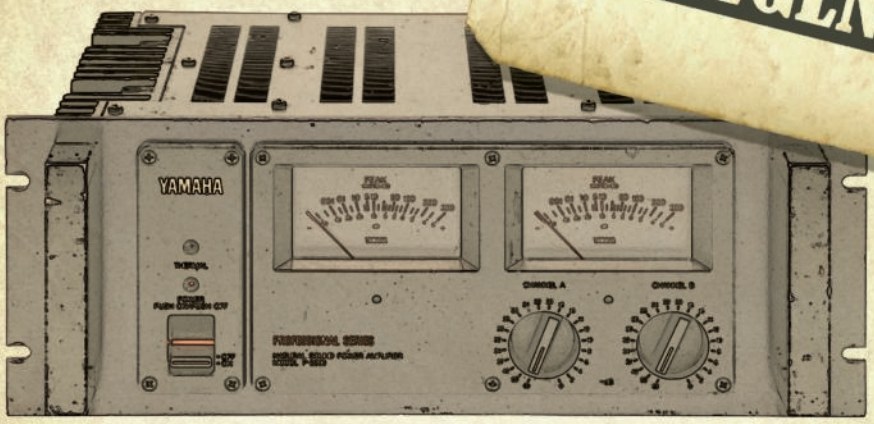

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Lady Antebellum, from left: Charles Kelley, Dave Haywood and Hillary Scott

Lady Antebellum

By Sarah Benzuly

COUNTRY ROCKERS BUILD ONSTAGE PRESENCE

Front-of-house engineer Brett "Scoop" Blanden has seen Lady Antebellum, the three-piece also known as Lady A, skyrocket from the debut of their self-titled album in 2008 to last year's release of *Need You Now* (which garnered the band Vocal Group of the Year and Single of the Year for "Need You Now" at the 44th Annual CMA Awards, as well as Grammy nominations for Record, Song and Album of the Year). Along the way, Blanden has helped to create the tour's "audio family" and sculpt his mix so that the band really shines, as they recently did at the Fox Theater (Oakland, Calif.)

"I think that the show has really developed itself," Blanden says of the band's evolution onstage. "In the first place, Lady A has been really aggressive in the way that they push their music and their desire to present that experience to the fans. Have my mixes changed? I hope they have. I hope that I'm increasingly a better engineer day to day. When we started out, it was a three-piece band, so I experimented and used stereo-miking guitar concepts just to provide a richer guitar experience. Now that we have three guitar players onstage, some of those things have become minimal."

What hasn't changed for Blanden is the way he attacks his mix. Having grown up in the recording studio side of the industry (he's a former manager of Ocean Way Nashville), he tends to mix for a flatter sound, paying closer attention to mic placements and things of that nature rather than diving straight for the EQ. "Part of it is natural, and part of it is because I love lyrics," he explains. "I tend to put vocals on top just so that everybody can understand what's being sung without having to listen too hard. I think that Lady A runs the gamut in terms of the spectrum of the music: They do everything from a cover of Bonnie Raitt's 'I Can't Make You Love Me' to Bruce Springsteen's 'I'm on Fire' to up-tempos to power ballads."

The Tools at FOH

With such a diverse range of musical

Front-of-house engineer Brett Blanden (left) with systems tech Adam Robinson at the Studer Vista 5 console

Monitor engineer Kurt Springer at the Avid Profile

styles to contend with every night, Blanden relies on the Studer Vista 5 board and Lexicon 960 effects processor to create a wide palette of "colors." Sound company Maryland Sound brought Blanden to its headquarters to listen to five different consoles on five different types of P.A.—all interchangeable in one setting—so that he could choose the right gear for the job. "I don't know how many people get the opportunity to do that, but it was really informative. It allowed me to choose the components that I thought would work best for my artists. The Studer seemed to fit my style of mixing best, and I thought it was going to give me the best representation of my artists in a live environment."

In addition to the 960, an Eventide Eclipse (vocal doubler) and TC Electronic D-Two delay all run AES out of the console, with Blanden working with the console's onboard comps and gates. He's using the Studer-branded PC to interface with the board to manage his Waves C6 multiband compressor VST plug-ins, which are used on vocals. "It's really worked out well for Hillary [Scott, vocals] and Charles [Kelley, vocals]. It's also a viable de-esser; anyone looking to choose a de-esser in their live mixing environment should check this out. The latency is so low that we don't really notice it at all. I have that on my five vocal channels. I have the 960 set up to recall custom programs I made for each song when I go down the cue list in the Studer."

Blanden can make tweaks to the cue list, most specifically in response to the type of crowd the band is performing for that night: "Do we have a younger crowd or an older, seasoned ticketholder? Things like that definitely dictate many things, from how predominant the lows are in the room or how much sub I'm going to use, how loud the show's going to be, what types of instruments we choose to be more noticeable; if it's a more rockin' crowd, I'm going to put more guitars on top," Blanden explains.

"We soundcheck almost every day, so the band's comfortable with the FOH mix and the way the room's responding," he continues. "How much 200 [Hz] is coming out of the guitar amp and out of the P.A. definitely affects how [Dave Haywood, backing vocals/multi-instrumentalist] is going to play. But so far, our ability to have a pretty regular soundcheck lets the musicians participate in the same types of custom fit [that I'm doing with my FOH mix] for the audience."

Monitor engineer Kurt Springer mans a 96-channel Avid Profile. "I'm a chameleon when it comes to which desks I use," he says. "When I use a Studer, I'm happy with just a 960 and a few nice vintage effects pieces such as AMS reverbs. On the [Avid] platform, I have a tendency to utilize plug-ins until I run out of DSP. I like to use different plug-in compressors, on keyboards especially. Instead of making a typical stereo pair, I use left and right—a la George Martin—to give left and right a different textural dynamic.

"My musical theme for the band is to create as big of a universe as possible. First, I want everybody to hear what everyone else is thinking. I want enough space in all of the mixes to make it easy for the players to hear each other even when only a hint of an instrument is asked for by the player. In other words, I try to give them full content even if they have an agenda to minimize it."

Lady Antebellum is all in-ears, using a combination of UE9s and Westone models.

The MSI-provided P.A. comprises JBL VerTec 4888DP boxes with the new DP-DA processing card, as well as VerTec 4880A subs powered by Crown iTech HDs. Ac-

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"We soundcheck almost every day, so the band's comfortable with the FOH mix and the way the room's responding."

—Brett Blanden

cording to system tech Adam Robinson, the signal flow is completely digital from the moment the mic hits the preamp all the way to the speaker box. "We also carry eight Outline Mini Compass boxes for fills," Robinson adds. "We've found that their output and adjustable horizontal dispersion is quite helpful, along with sounding pretty damn good!"

Robinson tunes the system with a couple Earthworks M30 mics and Smaart 7 to get a pretty decent flat response in the room. From there, he throws on some tunes and listens to the system. "We're doing venues from medium-sized theaters to small arenas, and we even threw in a large club gig in there," Robinson says. "Along with having a rig that has been able to scale easily to all of these places, the ability to control individual boxes when needed has made our job easy and slick. We have the ability to do four hangs—mains and sides, typically—and even place a couple of boxes on the deck when needed, all without worrying how we're going to divide up amp channels or processing paths."

Lady A is a Sennheiser endorser, so many of the mics found onstage are from this manufacturer, including a Neumann KK 105 S capsule atop a Sennheiser SKM 5200 handheld transmitter for Kelley; a SKM 5200/MD 5235 handheld RF for Scott; and an e 935 hardwired for Haywood. He's making extensive use of mics from the evolution 900 Series on drums, while bass sees beyerdynamic M88s. For guitar amps, Blanden places two mics on each amp: a Sennheiser 421 and a varying flavor of ribbon. "I have just tried that out this year and have gotten pretty good results," Blanden says of the double-miking amp strategy. "I'm currently using the Cascade Fat Head II ribbons as my secondary mics to the 421s. I believe ribbon mics afford you more leeway in the phase-relationship department, especially if you are using more than one microphone. It's just a different flavor and having more colors available for my palette is always welcome. I try to use all passive DIs, if possible, especially on acoustic instruments: guitars, Dobros." III

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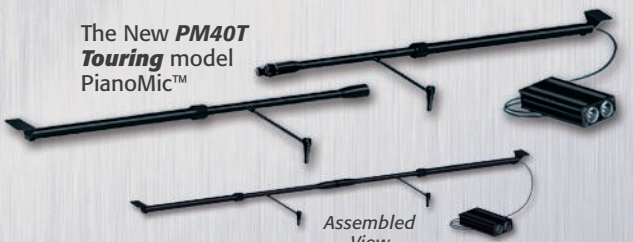

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Wireless Rulings

AND WHY YOU NEED TO PAY ATTENTION

By Tom Kenny

"Ninety percent of wireless users will likely see no difference," says Lectrosonics' Karl Winkler, in reference to the September 2010 decision by the FCC to open up portions of the broadcast spectrum to "white spaces devices," meaning new portable consumer gadgets and the coming enhanced Wi-Fi networks being pushed by companies such as Google, Dell and Microsoft. "For typical wireless users," Winkler continues, "those who run fewer than 16 channels in a fixed installation where the mics are in close, they should be fine. But if you go out to the edge with a large number of channels that are unregistered in a crowded market, you could find yourself in trouble."

What's he talking about? In some circles, the unanimous September 23 decision was front-page news. That ruling was two years in the making, following a 2008 announcement that the largest allocation of wireless spectrum in 25 years would be opened up to unlicensed use. The NAB petitioned vehemently to prevent the ruling, arguing that by allowing unlicensed, low-power users unfettered access to the broadcast spectrum, TV stations and news gatherers would be in constant jeopardy from interference. Wireless microphone manufacturers, most notably Shure, also chimed in, spending millions of dollars and enlisting the support of Illinois Representative Bobby Rush, Nevada Representative Shelly Berkley and others to lobby on behalf of the professional wireless community. Imagine, they argued, countless local Wi-Fi hot spots and thousands of active SmartPhones at a headlining concert in Minneapolis, or a political rally in D.C., or an unscheduled media event in Times Square, right in the heart of Broadway—dropouts, interference, signal stomping, even from low-power devices.

It was an argument that nobody was going to win. NBC against Google? ABC/Disney/ESPN against Microsoft? Shure, Sennheiser and Lectrosonics against Dell? Consumers want the access and the speed, the latters argued. Consumers want clarity and reliability argued the former. But after the dust settled (and the bloggers chimed in), it seems that, yes, the high-tech community won big, with unused white spaces—the high-quality broadcast spectrum freed up with the 2009 conversion to digital television—opened up to unlicensed use for low-power devices. And, yes, the FCC acknowledged the professional audio community, even if it was in a limited way.

A Complex Solution

In a nutshell, wireless microphone users were granted a protected part of the spectrum, so in that sense it was a victory. On a market-by-market basis, wireless mic users are protected in the two first-available channels above and below or closest to TV 37 (the protected radio astronomy band), but it might be 36-38 in one market and 35-36 in another. So it is incumbent on the operator to dial in what is what. If a local user or a touring act has a special event requiring more channels or greater protection, they are able to apply to the FCC for a "protection extension" with a 30-day advance that includes a period of public comment.

The problem right now is that it is not clear what guidelines will govern the application approval; nor has it been determined who, or what, will maintain a national database of licensed users that will be the primary source of protection for larger, fixed operators. The FCC left that decision for later. Google, and other consumer-oriented groups, have applied to be the administrator of the database, but more than one commentator has equated that to the fox guarding the henhouse.

Also, the FCC did not follow through on one of the key proposals from 2008 that would require unlicensed operators to employ sensing technology in every unit. That means your 4G PDA, tablet or phone doesn't have to check for unused frequencies and switch over when in conflict; it would have been too expensive per device, the consumer group argued. The FCC did, however, keep a provision from 2008 that requires geolocation technology in all unlicensed devices, meaning that they have to check in with the database of known broadcasters and wireless mic channels that have registered for protection, either temporary or permanent.

Nobody *Mix* has talked to during the past few months has expressed much worry about the Super Bowl or the Grammys, the 17,000-member congregation or Universal Studios theme park, the Bon Jovi tour or Bonnaroo. They will register; they will be protected. But problems may crop up with the mid-level act coming into Las Vegas without a tech-savvy production manager, or the 500-person congregation that has a mega-Easter production with guest actors and a full-blown, all-in-ears backing band. Is it the musical director's job to register? Or is it the head of the regional sound company who rented the extra transmitters, beltpacks and antennae? These are the questions that can be headed off by those who look ahead, but as we all know in live sound, even the best laid plans...

The Status Quo—For Now

But the sky is not falling, as Winkler points out, a sentiment echoed by Mark Brunner at Shure. "The FCC ultimately listened to the needs of the professional wireless community and set aside two UHF channels to protect the majority of users," Brunner explains. "That is a victory. The FCC recognized our needs. But there is more to come, and every wireless user, big and small, needs to pay attention over the coming year. We still don't know who will be maintaining the national geolocation database, so getting registered—especially for the mid-level church, event production or regional theater—is critical. We are encouraging all of our users that if in doubt, apply for a license!"

"This is not equivalent to two years ago, when we were told that we had to vacate the 700MHz band," Winkler concludes. "That involved new products, updates and changeovers. This is part of an evolution, of the eroding of the wireless spectrum. Most people should be okay, but everybody needs to pay attention." III

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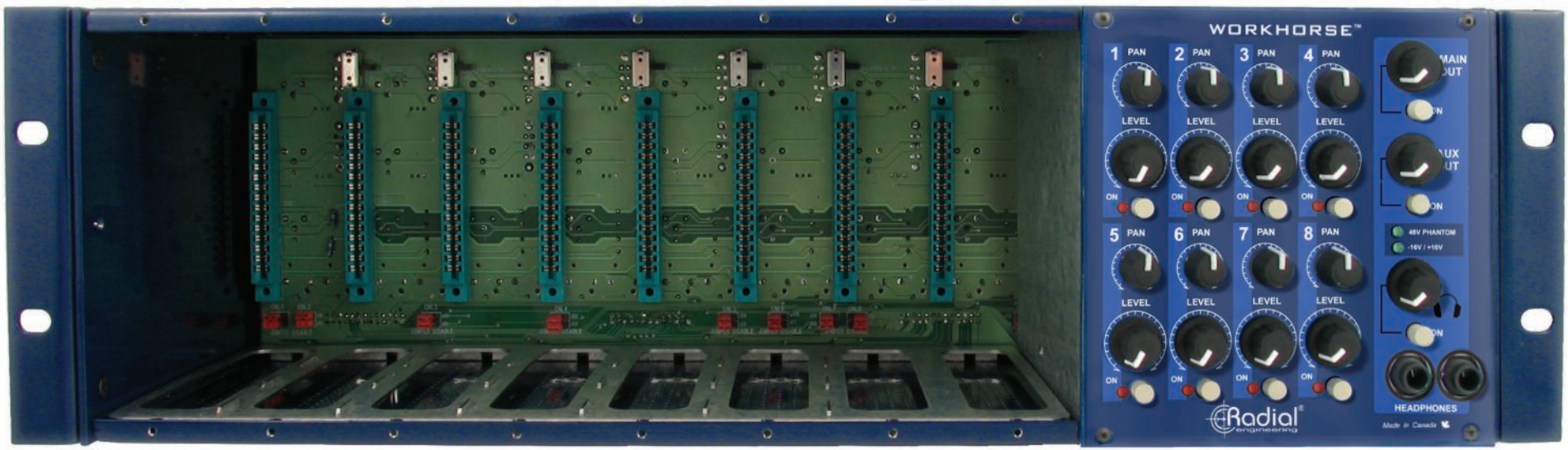

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Troubadour house engineer Bobby Crown at the Avid VENUE SC48 with Smack! plug-in shown on the iPad

PHOTO: KEISHI NAGASAKU

iPad Mixing

AN EXTREMELY DOWNSIZED FOH RIG

By Sarah Benzuly

It can be argued that Apple's iPad has changed the way people make music. But for mixing a live show? You bet. Granted, you won't be seeing front-of-house engineers at the next arena date walking around the floor, pushing "faders" up and down on an iPad while the digital console sits idle. But for smaller venues of 1,000-capacity and below—where house (and visiting) engineers are contending with multi-levels, multi-zones and an FOH board in a less-than-ideal spot—you may start seeing more iPad-mixed shows. And that's exactly what house engineer Bobby Crown of the famed Troubadour club (Los Angeles) is doing.

Crown, who has been with the venue for the past eight years, has been spearheading the club's audio upgrades, fighting for a digital console to replace its aging analog boards, garnering a loaner Avid VENUE (and later purchasing that digital console) and generally leaning toward more computer-based processing. And then he took it one step further: "When the iPad came out, I knew that I could use it to mix," Crown says. "So I waited five months and checked out some people online who were messing around with it and found a screen-sharing program [iTelePort] that allows the iPad to capture the [SC48's] screen and control the console remotely. I finally went out and bought an iPad to strictly mix the show; the only apps I have on it are audio apps, and I leave it at work.

"As soon as I got the iPad working with the SC48, it really opened up the doors even wider than when we got the digital console," he continues. "It allows you to be completely remote; you don't have to be stuck behind the console anymore. You can walk around and utilize every feature the console has because the Avid [VENUE] software is able to be seen on the screen." Crown connects the router to the back of the SC48 via Ethernet out and assigns the IP address to the iPad. As soon as he turns on the app, the console screen is at his disposal and is ready for soundcheck.

"So now that we're onstage and the band's loading in, I can troubleshoot all the monitors; I can send pink noise throughout the whole system


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and verify that each monitor works. If it doesn't, I can stay downstairs, go to the amp and figure out what the problem is to fix it [instead of making numerous trips from console to stage and back again]. The bands see that their engineer—whom they haven't met before—is doing something to help them along and immediately become very comfortable. Once we get all the monitors ringed out and we know they're verified, we plug in all the microphones based on the band's input list, and I can stay onstage and walk right up to the monitor and hear if things are working or not working correctly and fix it. It just gives you a better understanding of what's happening onstage because you're there."

For the most part, this is standard fare if a band comes in sans engineer; when a group does come in with their own audio tech, that engineer will work on the SC48 while Crown and his second-in-command, Sean Myers, use the iPad to monitor those mixes and help—on-the-fly—if needed.

At showtime, Crown can be seen at the Avid board—which can be used for both FOH and monitor duties—making sure that all is working as it should. After the first song, once Crown and crew feel comfortable with how things are sounding, he'll start walking the floor, mixing with the iPad. "It's such a small club, once it gets full you can stay on the floor and mix, which we've done, but then you run into issues where people are right next to you and want to know what you're doing and distracting you," he adds. "We try to stay at the console for the show, but we do walk around a lot." You won't find Crown mixing from a moshpit, but he hasn't found any problems from the occasional bump from a club patron—nor has he experienced any latency issues with the router. "I had expected to see that when you move a fader, you'd have to wait a second to hear the result, but that hasn't happened. It's really instantaneous."

> "[The iPad] allows you to be competely remote; you don't have to be stuck behind the console anymore."
>
> —*Bobby Crown*

Asked if he misses the "tactile" feel of using a physical board, Crown replies: "Yes and no. Having a graphic EQ for the front-of-house EQ, that was something that I missed only because back in the analog days things were never solid. It was never a comfort zone of sound; it could go any way at any moment, and you had to always have your hands on it. Having that hands-on tactile response, there's things I miss about it, but now that I know how the console feels with a mouse and the knobs and faders that it provides, I don't really want to go back—ever. From the beginning of my career in live sound until now, this is the closest I have ever been to feeling fully connected to my responsibilities as a professional live sound engineer. The ability to adjust any input or output—with no limitations, at any position in my mixing environment—at the same time delivering the desired result in the time expected is the ultimate rush any sound engineer can have!" III

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SOUNDCHECK

Vinyl Music Hall in Pensacola, Fla., has a DiGiCo SD8-36 console at FOH.

From Rubble to Big Leagues

In just a few months, the new Vinyl Music Hall venue (Pensacola, Fla.) emerged in a spot that was formerly occupied by a gutted three-story Masonic temple. At the heart of the club are dual DiGiCo SD8s: an SD8-36 at front of house and an SD8-24 at monitors; a d&b audiotechnik Q1 P.A. system; and Meyer Sound USM-1P wedges, all supplied by Pensacola-based All Pro Sound.

The DiGiCos' 40-bit floating-point processor lets the venue deliver high-quality sound live to a 525-capacity room, as well as providing the ability to stream archived multitrack performance recordings over the Web. For production manager and system designer Brian "Disco" Oden, the DiGiCos are his first foray into the digital world. "There were a lot of things I really worried about when thinking about digital consoles: software, night-to-night reliability, sonic quality," he says. "But when we were showed all the capabilities, I put all that to rest. The SD8 has truly made this a multifunctional facility. Given the flexibility of the console, we can push out audio in so many different ways.

"It offers the capability, with two wires, to capture live audio and stream it back through the channels of the console you're recording from. The band can be onstage doing soundcheck, and with the push of a button, the audio is instantly transferred back, channel to channel from my computer, through the console so the band can review it. It gives engineers the ability to listen to the individual instrumentation and do their final tweaking, without the band, and saves an enormous amount of time for everyone. At the end of the night, I can hand over a complete multitrack or 2-track recording on a Blu-ray DVD to any band or artist.

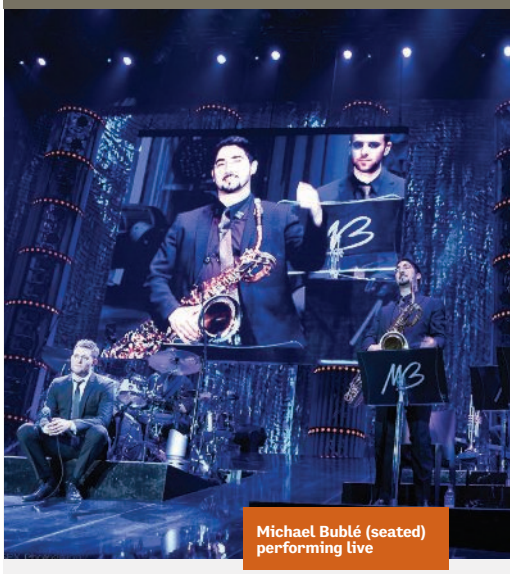
"We're looking ahead, and have the capability and technology in place to be able to broadcast live or prerecorded materials via streaming Dolby 5.1 digital audio with high-def video in the near future."

fix it

Gaelic Storm FOH Engineer Peter Wildermuth

With the unique combination of instruments in this band, the most challenging thing is making the mix sound full, without sounding brittle or harsh. There is an abundance of upper-midrange frequencies, especially in the fiddle and bagpipes, that require careful notch filtering. I find that cutting 4 kHz and 8 kHz on the bagpipes really helps to soften it up. I also find myself boosting a bit of low-mid with the pipes. With no bass guitar in the band, I compensate for that by keeping the bottom end of the guitar as prominent as I can while being careful to cut just a bit of where it can get muddy, usually around 160 cycles. The lack of bass guitar is also made up for by the solid bass drum sound, which originates from a Roland TD-3 sound module. Finally, I place a Sennheiser e604 on the bottom of the Djembe to capture the bass notes that Ryan plays. To keep vocals under control, while also allowing them to cut through the mix, I typically double-bus my vocal channels by assigning them to a pair of subgroups and also directly to the left/right mix. I use a stereo compressor or a pair of compressors inserted on the subgroup, typically with a 3:1 or 4:1 ratio. The compressed signal is blended with the direct, uncompressed signal, which offers so much more control.

tour log



Michael Bublé (seated) performing live

Michael Bublé

Monitor engineer Craig Brittain tells *Mix* that each of the brass players on the crooner's tour is using Aviom Pro16 personal monitors to handle their individual mixes.

How did the Pro16s come into play for this tour?

The Aviom personal monitoring system came into play at the start of the last round of album touring. I was looking for a product that would help ease the workload of mixing monitors for a big band, but would be relatively unobtrusive, reliable and easy to use and set up. Our production manager at the time, as well as a few industry peers, spoke very highly of the Aviom products, and upon testing them out it became a no brainer.

Are you providing any mix to the brass players or is that completely handled by the Aviom systems?

I am not using or sending any other mixes to our brass section apart from the stems and direct outs that fill out the 16 channels of the Avioms. I have a few spare mixes/beltpacks in the event of a failure or malfunction of some sort. The only time in the past three years I have needed to use a spare mix for our brass section was when one of the guys squashed a Cat-5 cable with his chair.

What console are you working on? Any FX?

I am currently using a DiGiCo SD7, which works great with the Aviom system through the use of D-16c A-NET card. I do use one channel of the allotted 16 to send a little bit of reverb along with some of our brass ambient microphones.

Where can we find you when you're not on the road?

I'm dividing my time between my home in Vancouver and Calgary, where my mom and sister live. Most nights, I'm taking in a live show somewhere, and catching up with friends whom I have met during my time on the road.

Dual Installs, Dual E-V Rigs

When Pyxis Industries (Riverside, Calif.) was asked by North Coast Church to bid on the design and installation of sound systems at two different locations (North Coast Live and The Edge, pictured), owner Chad Costanzo didn't hesitate—despite only having six weeks to do the job. The vendor that was originally retained to design and install the systems pulled out of the project only two months before opening day at both facilities. Costanzo went to work with systems engineer Alan DiCato, deciding how to handle the project within the church's allocated budget.

Pyxis had the two systems—based on Electro-Voice rigs—designed, priced and approved within three weeks. The core elements of both systems are "exploded array" clusters drawn from the Xi Series. While the rooms are physically dissimilar—one is rectangular and the other more trapezoidal, and their ceilings are different heights—the clusters are identical except for the angles of the speakers. The clusters combine full-range Xi-1153A/64Fs for long throw and Xi-122MHA/64Fs for front-fills/down-fills. The low end for both clusters is augmented by three dual-18 X-subs in concrete bunkers below the stage; monitoring is via TX1122 FM stage wedges, while powering is handled by E-V CPS Series amps.

For system control, Pyxis chose an Electro-Voice NetMax N8000-1500 with three added DSP cards. The NetMax systems also included optional digital I/O cards that allow Pyxis to bring in 96kHz/24-bit AES/EBU digital audio directly from the Midas digital console without any conversion.

load in

Coheed and Cambria frontman Claudio Sanchez sings into a Sennheiser evolution e 945 wired microphone.

PHOTO: © 2010 KALEY NELSON

All musicians, dancers and audio crew for the **Lady Gaga** tour are on **Sensaphonics** in-ears, including monitor engineer **Ramon Morales**...**The Flaming Lips**' shows feature custom-finished bright-orange **EAW** MicroWedge Series MW15 and MicroSub monitors...**Supertramp**'s European dates see an **L-Acoustics** K1 line-source system provided by Germany's **Sirius Showequipment**...Australia's **TIO Stadium** now features 15 bi-amped **Community** WET Series W2-322L-64H loudspeakers mounted on each truss on the grandstand canopy, and 22 R Series R.5-66TZ and five R.5HPT loudspeakers pole-mounted around the remainder of the ground, ticketing and turnstile areas. All loudspeakers are driven by **QSC** ISA800 Series amplifiers; system control is handled by four QSC Basis 922UZ units.

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Galaxy Audio expands its wireless personal monitor and mic lines in 2011. The DHT System features auto-scan, IR sync, detachable BNC antennae and 120 channels—all in a half-rack metal chassis (rack ears included). DHT offers four handheld mics (dynamic and condenser, cardioid or supercardioid), two bodypacks, a station for charging batteries while in the transmitter and antenna distribution, and a paddle antenna option. MSRP is $519. NAMM booth #B5955.

www.galaxyaudio.com

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The BP893 MicroEarset combines an ergonomically molded earpiece and omni condenser capsule on a 1-inch boom that fits over either ear. A 55-inch cable connects the mic to an XLR power module (with settings for flat response or 80Hz filter) or directly to an Audio-Technica UniPak bodypack transmitter; terminations for other makers' systems are also offered. Retail is $479 (in black or beige), including a cable clip, two windscreens, moisture guard and carry case. NAMM booth #6740.

www.audio-technica.com

AKG Perception Wireless

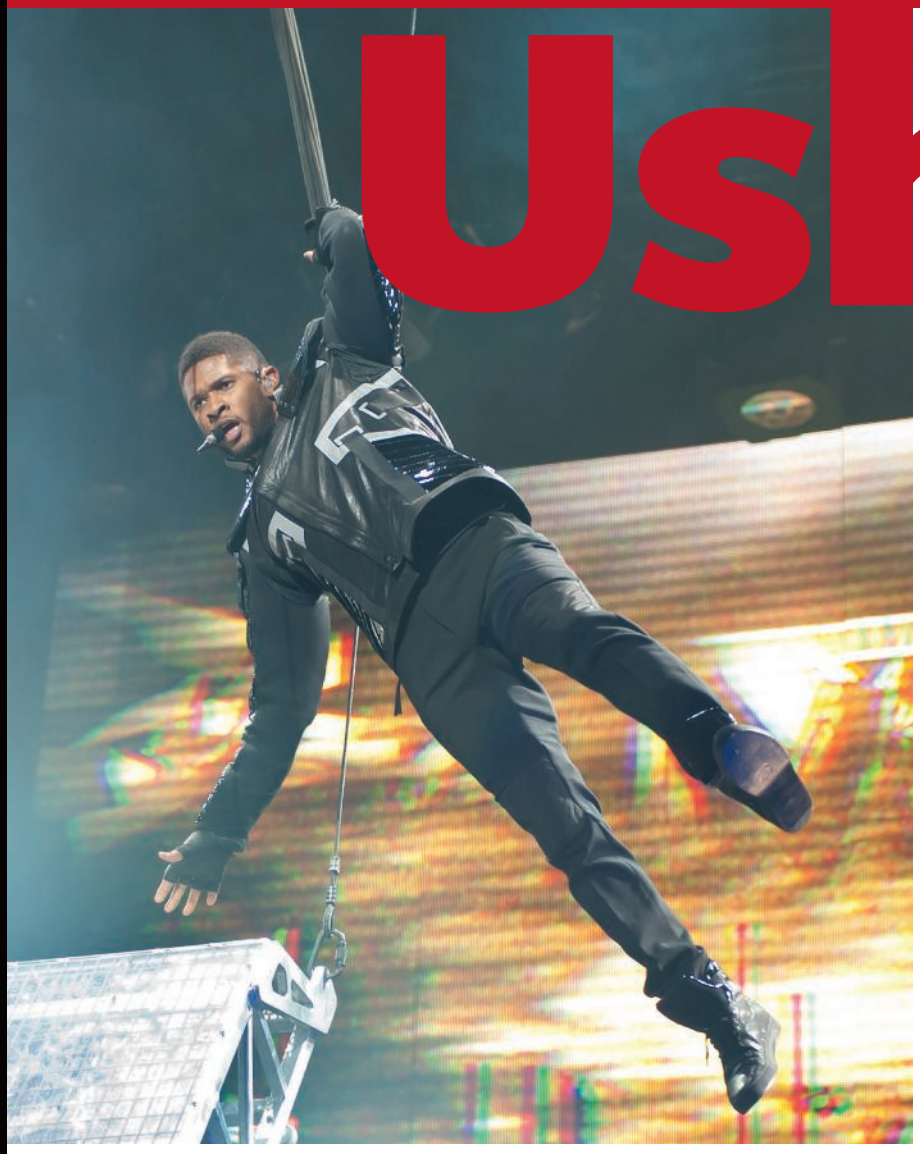
The Perception Wireless series comprises a Vocal Set with an HT 45 dynamic cardioid handheld transmitter; Instrumental Set with PT 45 pocket transmitter; Sports Set with pocket transmitter and C 544 headworn mic; and Presenter Set with PT 45 and a CK 99 L lavalier mic. The PT 45 is also compatible with all AKG MicroMics. All operate on a single AA battery and include the SR 45 diversity receiver with XLR and ¼-inch outputs. NAMM booth #7800.

www.akg.com

ALL ACCESS

Photos and text by Steve Jennings

Usher



R&B superstar Usher is out in full force, performing hits from his latest, *Versus*, on what is being dubbed the OMG Tour. With a stellar backing band, Usher kept the crowd on their feet, beginning with a fly-over entrance to start the show. *Mix* caught up with Usher and crew at the Oracle Arena (Oakland, Calif.).

When *Mix* caught up with the show, FOH engineer Mark Dowdle (inset below; he's no longer with the tour) was mixing on a Midas XL8 digital board, using all onboard effects. Current FOH engineer Tim Colvard mans a DiGiCo SD7, using such effects as Lexicon 960, Eventide H3000 and Yamaha SPX-990. Says Colvard, "Starting a tour that has been up and running always has its challenges—from learning the MILO system to getting up to speed with the show material—but I have received the support of a good sound crew to make this transition run smoothly."

A 96-channel Avid VENUE is seen at monitor world, where engineer Simon Kemp relies on Smack compressors on all vocals—and that's it. "Some additional rack gear I'm using is Dolby Lake EQ on the side-fills," Kemp adds. "I like to keep it very simple; I won't just use something for the sake of it. Less is more in this game. The EQ and dynamics on the desk are very good anyway."

According to monitor tech (pictured on the right) Brian Thorene, Usher's custom-fit mic headset is a Crown 311. The tour is using a Shure UHFR system for microphones and beltpacks, and a Sennheiser G3 in-ear system. Usher and band are on Sensaphonics' 3 Max in-ear monitors.

According to drums/percussion/keyboards/DJ tech Benoit Brideau, drum mics include Shure 91 (kick), Beta 52 (kick), SM57 (snare top and bottom), AKG 451 (hi-hat), AKG 460 (ride), Sennheiser 604s (floor tom) and Neumann U87s (overheads). Says Brideau: "My company is Bencin's Production Inc. out of Las Vegas, and we're providing the Usher tour with all the wireless Sennheiser G3 IEM, FOH mixer for the opening act, Avid MixRack and all the backline backup gear and cases."

"For musical director Valdez Brantley's keyboards," says keyboard/guitar tech John Ciasulli (pictured at right), "he's got a Roland V-Synth, Phantom 6, GAIA SH-01, an original Minimoog that literally makes the arenas shake, a Lucina AX-09 portable keyboard [pictured on Brantley below] and an Oberheim OBX-8a as a spare. All this gets mixed in a Mackie 1202 mixer and goes straight to the house—no pedals or effects of any kind."

The Meyer P.A. system (provided by Major Tom) comprises 60 Milo and 18 subs in the air, and 18 subs on the ground. "The Milo system from Meyer is the best, loudest, yet clearest-sounding system on the market—a real pleasure to work with," says audio system tech David Litchfield Klann, pictured at left with cohort Jack Dunnett. "I owe everything I have ever done in this business to Adam 'Hay Stacks' Schuler—thank you brother."

Adds Dunnett, "Some of the key mics we're using on the tour are Shure KSM9 for vocals, SM57s on guitar amps, some Audio-Technica 4050s and other various Shures."

PHOTO: COURTESY THE WEINSTEIN COMPANY

Queen Elizabeth (Helena Bonham Carter) and speech therapist Lionel Logue (Geoffrey Rush, far right) help King George VI (Colin Firth) master elocution in *The King's Speech*.

By Blair Jackson

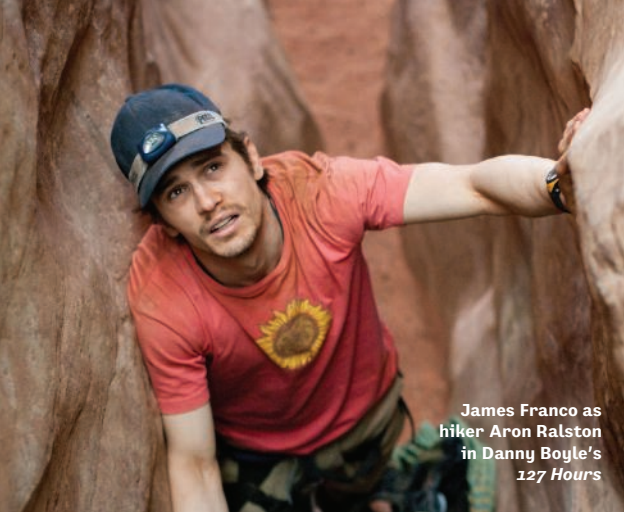
'The King's Speech' and '127 Hours'

'SMALL' BRITISH-MADE FILMS PROVE SOUND SAVVY

The King's Speech is one of the most critically acclaimed films of 2010, and seems all but assured of landing acting nominations for its leads—Colin Firth as the stuttering, ascendant King George VI and Geoffrey Rush as the brash speech therapist who takes on this most difficult patient—and it is certainly worthy to be lauded in other categories. This being essentially a talky palace drama, it is unlikely to be honored for the excellent sound job supervised by Lee Walpole, who is best known for his work on British television; that is also the world where director Tom Hooper comes from—he has helmed such historical dramas for television as *Elizabeth I*, *Longford* and the acclaimed *John Adams* series.

Walpole and the *King's Speech* sound crew—including production mixer John Midgley and re-recording mixers Paul Hamblin and Martin Jensen—were tasked with sonically re-creating the world of both royals and "commoners" in 1930s England, and with putting across an intimate, deeply personal story. "Authenticity was the name of the game," Walpole says from the London post house he co-owns, Boom Sound Studios. "Tom is a very sound-focused director and he wanted everything to sound as realistic as possible to really take you back to that time and to those places."

One ultra-realistic touch was corralling the actual microphones that had been specially built for King George V and King George VI; the mics had been locked in storage at EMI for the past 70 years or so. "Alexandre Desplat, the composer, used them in recording some of his score and also for the inversions of Beethoven music re-recorded for the film," Walpole says. "We also took all the dialog that was put through radios



James Franco as hiker Aron Ralston in Danny Boyle's *127 Hours*

Rush holds one of the vintage mics used in *The King's Speech*.

PHOTO: COURTESY FOX SEARCHLIGHT PICTURES.

in the film and re-recorded it through those microphones—it gives an authentic sound you simply can't achieve with a digital plug-in or speaker phone, or whatever people choose to use nowadays to simulate that old radio sound."

Director Hooper, Walpole adds, "mainly used sync [production] sound on the film; he shuns ADR if at all possible. He was very keen to preserve the actors' performances he got from the day. A lot of it was shot in these enormous rooms, but because he wanted to maintain clarity of speech, the sync sound was fairly tight. One of our briefs at the start of the film was to create a macro soundscape that would complement the tight close shots that Tom frequently uses in the film. So even though they were often in large spaces, we actually added more space in the form of reverb while keeping the dialog prominent." The film was mixed on a Neve DFC at Boom.

"Foley played a huge role in the film," Walpole adds. "So much of it takes place in these huge old rooms with wooden floors. It can feel quite artificial and effect-y when you match that on the Foley stage, so we shot our Foley live on location on Pro Tools. It gave the Foley real depth and also gave each room its own personality."

Another challenge that required extremely subtle sound design was dealing with the Colin Firth character's paralyzing speech difficulties. The very first scene of the film finds the then-prince struggling through an amplified speech at Empire Stadium, and throughout we see him in large and small settings grappling with his impediment.

"The film is about a man's inability to speak," Walpole offers, "so we focused on the noises Colin makes, his words catching in the back of his throat. We pushed them to a hyper level in the mix and then we upped the atmosphere or added noises, often preceding those moments to emphasize the awkwardness of the silence that would follow when he could not speak.

"In the Empire Stadium scene," he continues, "we used the extreme echo to emphasize his awkwardness. We spent a fair bit of time layering up the voice with different delays and treating each stem differently so it's surrounding you and coming from all directions. Some of them are straight feeds from the Tannoys [in the studio], some of them are reverb returns bouncing off the wall, which is what's disorientating him and feeding all around the room. Hopefully, it does the same thing for you as a viewer as what Bertie [the prince] is feeling as the sound is washing back at him. We want you to feel uncomfortable, too."

Speaking of making audiences uncomfortable, there has been much chatter about the lengthy arm amputation scene at the heart of director Danny Boyle's much-acclaimed *127 Hours*, the filmmaker's first effort since he won Oscar gold for *Slumdog Millionaire* two years ago. That film—which was honored in a slew of different categories including Best Sound (it was also nominated in the Sound Editing category)—couldn't be more different from *127 Hours*. *Slumdog* was teeming with the buzz and cacophony of overcrowded cities while *127 Hours* focuses on the real-life ordeal of a hiker named Aron Ralston (played by James Franco) in Utah's beautiful but desolate Canyonlands National Park. When a falling rock in a crevice traps his arm, Ralston eventually decides the only way out is to cut off much of his arm with a pocket knife. More than one critic has commented that it isn't the visual of an arm being cut off that is most disturbing; it's the sound, which seems to accentuate every tendon severing, every stream of blood, every cry in a nearly unbearable symphony of pain.

"That was by design, certainly," comments sound designer and supervising sound editor Glenn Freemantle, who assembled much of the post team that worked on *Slumdog*, including Oscar-winning re-recording mixers Ian Tapp and Richard Pryke, and FX designer/editor Niv Adiri. Post was at Pinewood Studios in England. "It was the most pain he's ever had amplified a hundred times. The concept was to always be with Aron sound-wise. It's all from his perspective. We did a lot of research on how he felt and how he heard things, how he heard the bone break and all. He stabs himself and you hear the heartbeat, the rushing of blood and the release of gases. It was all how he perceived things. The strings of his nerves were like electric strings that he had to pull that sent this shocking pain that was like electrical pulses." For that, Freemantle's team used a combination of distorted, plucked electric guitar strings and sustained electronic noises to communicate some of the searing pain.

There's more to the film than just the amputation, of course, "From the point where Aron gets trapped," Freemantle says, "the sound becomes a character within the film, as do all the things Aron has with him. Sounds that would normally be tiny become amplified because they're all part of him. Everything around him that is for survival has a sonic character—his knife, his water, the ropes, his backpack. This is his world now, and every moment of it was us trying to keep him in this place with the sound—keep the tension and gradually changing in perspective as the film goes on."

For location accuracy, "We went to Utah, set up mics all over the actual canyon where it took place and then shot [sound] 24 hours a day [using a pair Sound Devices recorders] for two days—changing batteries in the middle of the night, dealing with weather, et cetera—so we'd really have a sense of this place."

Back at Pinewood, Freemantle and his mates "built a version of the canyon on a stage. We had a frame made about six feet high, eight or 10 feet long, clad it all in sandstone and limestone, and made it the width it was in the actual canyon so every sound effect we shot, we shot within that so the response time was like it would be in there."

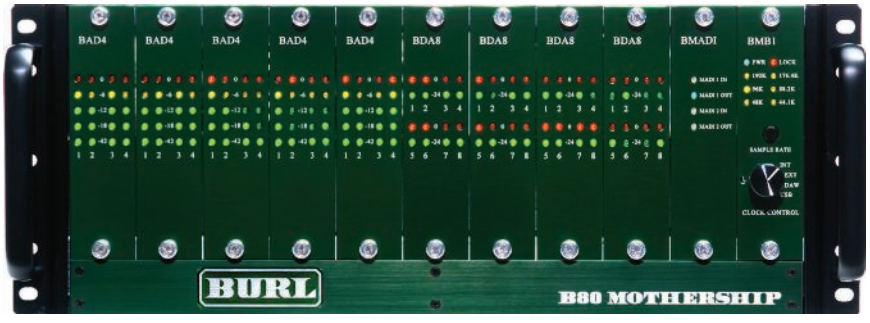
There was extensive FX and Foley recording using the previously mentioned knife and water bottle and such. "Every move had to mean something because we wanted to be in Aron's head. Even a little crawling ant was tiny layers of sound. Dust blowing across the rocks. The knife sound changing a bit as it's getting duller. Everything was amplified to a degree, but not loud because the space around it was brought down with it. It's very subtle, but hopefully effective."

And how's this for going the extra mile: "We wanted to get the sound of his lips getting drier and more chapped, and to get the sound of water in his mouth. For every line of his dialog, we'd cut a dry lip in and out, the sounds of lips parting. It was all about the detail." III

New DAW Attitude

Cakewalk **SONAR X1**

Promising to streamline DAW workflow through a major redesign, Cakewalk's (cakewalk.com) SONAR X1 touts a completely revamped toolset. Most functions are now performed with a single implement that switches automatically, based on context. This dramatically speeds editing and arranging by reducing the need to switch tools constantly. The new ProChannel features console-like mixing controls, including EQ and compression, a variable tube stage and flexible routing. Upgrade, crossgrade and version feature set information is available on the Website. Prices: SONAR X1 Producer, $399; SONAR X1 Studio, $199; the 32-bit-only SONAR X1 Essential is $99.



Who's Your Mommy?

Burl Audio **B80 Mothership**

Burl Audio's (burlaudio.com) B80 Mothership ($2,499) is a completely configurable AD/DA converter with up to 80-channel capacity. Using a card-based system in a heavy-duty 4U chassis, the B80 has 10 card slots with 2/4/8-channel AD/DA cards (purchased separately). Every ADC channel features Burl's BX1 transformer and every DAC channel has the company's latest BOPA2 discrete op amp technology. Digital interconnect is configurable and controlled by a swappable motherboard. The BMB1 motherboard comes standard with two DigiLink connectors for direct connection to Pro Tools, allowing 64 DAC channels straight out of the DAW with one unit run off of an internal master clock. Other digital add-on cards include BMADI and BAES/EBU.

Gimme an €! Gimme a G!

UAD **SSL Plug-Ins**

With direct involvement from SSL, Universal Audio (uaudio.com) has released its Solid State Logic E Series Channel Strip ($299) and G Series Bus Compressor ($249) plug-ins for the UAD-2 platform. The circuit emulation of the SSL 4000 console comes complete with both the Type E "black knob" and "brown knob" 4-band EQs, including high- and low-cut filters, and independent expander/gate and compressor/limiter. The SSL G Series Bus Compressor emulates the center-section console dynamics from the SSL 4000 and features the same simple control set and transparent compression characteristics of the hardware version.

Hardware-Modeled EQ, Compressor

Focusrite **Midnight Plug-In Suite**

The Focusrite (focusrite.com) Midnight plug-in suite offers models of the ISA110 EQ and ISA130 compressor from its legacy Forté console. The plug-ins (EQ, $129; compressor, $99) are compatible across VST, AU and RTAS formats, and feature attractive and easy-to-read GUIs. The EQ offers variable high- and lowpass filters, sweepable high- and low-shelving bands (±16 dB) and fully parametric high and low mid-bands. The compressor provides the expected threshold, ratio, attack, release and makeup-gain controls, plus a variable wet/dry control for parallel compression effects.

Portable Production Prodigy

Lynx **LT-USB Card**

The Lynx (lynxstudio.com) LT-USB card ($395) is an LSlot interface for the Aurora 8 and Aurora 16 AD/DA converters that provides digital input and output to desktop and portable computers (Mac/PC) using USB 2 ports. The LT-USB features up to 16 input and output channels at up to 96 kHz, and eight channels at 192 kHz. Other features include Lynx Studio Technology's proprietary SynchroLock™ technology to virtually eliminate USB bus jitter when slaving Aurora to USB. Control is provided via the Aurora Remote Control (ARC) application that ships with LT-USB.

Herculean DAW Platform

Rain Computers **Nimbus**

Multimedia Workstation

High-performance PC supplier Rain Computers (rainrecording.com) debuts its next-generation Nimbus Multimedia Workstation designed for professional production applications. Rain Computers states it has tested and certified Nimbus for optimum performance and stability with software (such as Steinberg Cubase, Adobe CS5 and Sony Vegas) and hardware. The sleek, all-aluminum enclosure features swing-out front doors that protect access to the optical drive, media panel and optional removable drives. Priced from $1,799, Nimbus is built around AMD's recently released 6-core processor architecture, and memory and storage can be expanded to 16 GB and 8 TB, respectively. The system is controlled by a version of Windows 7 Pro 64-bit that is specially tuned by Rain for audio and video production.

Classic Keys Doppelgangers

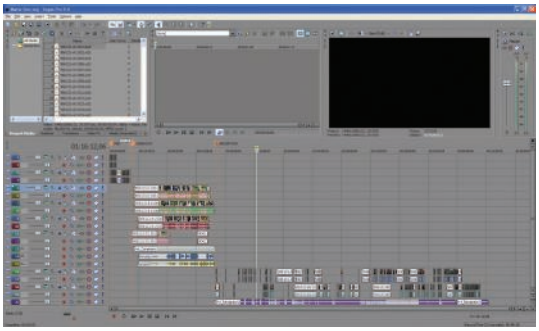
Arturia **Analog Laboratory**

Arturia's (arturia.com) Analog Laboratory ($299) combines a dedicated MIDI controller keyboard with a collection of 3,500 tweakable preset sounds from its software emulations of classic synthesizers, such as the Minimoog V, Moog Modular V, CS-80 V, ARP 2600 V, Prophet 5, Prophet VS and Jupiter-8V. It can be used as a stand-alone app or as a plug-in within popular sequencers such as Cubase, Pro Tools, Live, Logic Audio, Digital Performer and SONAR. Analog Laboratory is also offered as a $249 software-only version.

500-Format A/D Converter, Preamp

Millennia **AD-596, HV-35 micam**

Millennia's (www.mil-media.com) AD-596 ($1,500) is an audiophile-quality proprietary converter design in an API 500 Series–compatible, single-slot module. The converter is based on the company's AD-R96 design, and features analog inputs and digital AES outputs on Tascam-format DB25. The HV-35 mic preamp ($800) is based on Millennia's HV-3 Series mic preamps, and offers a front panel DI, DC-coupled +10dB gain boost for ribbon mics, 80Hz roll-off, 15dB pad, polarity flip and continuously variable gain control.



Timesaver for Audio Post

Singular Software **PluralEyes**

PluralEyes ($119) from Singluar Software (singularsoftware.com) automates media synchronization for multicamera, multitake, dual-system audio editing. Available for Final Cut Pro and now Sony Vegas Pro, the PluralEyes plug-in for Vegas Pro provides an array of features for managing multicamera, multitake and dual-system audio productions, including a level audio option—preserving the order of clips—and clip locking for seamless integration into existing workflows. The plug-in automates the entire sync process with frame accuracy, regardless of project complexity or camera quality.

Add Pop to Your Vox

iZotope **Nectar Vocal Plug-Ins**

New from iZotope (izotope.com), the Nectar plug-in suite provides 11 vocal production effects, including breath control, compression, de-essing, doubler, EQ, noise gate, limiter, delay, reverb, saturation and pitch correction. A manual Note Editor also lets users capture a segment of audio into its editor, with piano-roll-style editing of pitch and timing. Onboard presets offer quick access to 110 Style settings in 12 genres, such as '60s Motown sound, early '90s grunge rock, a radio-ready Podcasting template, jazz vocals or a modern pop sound, ranging from delicate improvements to highly produced robotic effects. The suite is PC/Mac-compatible, supporting Pro Tools 7 or higher (RTAS/AudioSuite), VST, MAS, AU and DirectX hosts.

Making Connections

Tascam **US Series USB Interfaces**

Tascam (tascam.com) expands its recording products line with three new multichannel USB 2 interfaces. The $249 US-800 has eight inputs, six outs (including six XLR mic channels with phantom power), two headphone outs and MIDI in/out. The $299 US-1800 (pictured) has 16 inputs, including eight XLR ins, six balanced line ins (two are switchable to instrument level), two digital ins and four simultaneous outputs. The top-end US-2000 ($499) also features 16 inputs and four outs, but offers improved audio specs and a 100 LED Meter Bridge. All are bundled with Steinberg's 48-track Cubase LE 5 software.

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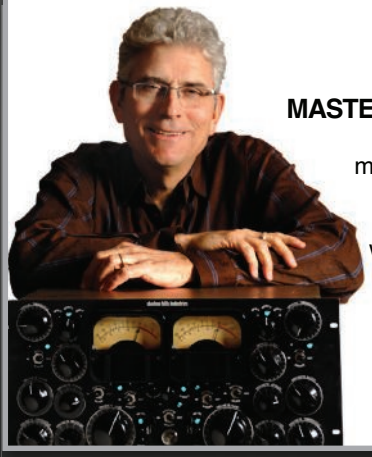

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WavesLive MultiRack Native

Virtual Processing Rack Offers Plug-Ins on the Go

I've been awaiting a hardware plug-in "player" that would run in the same way that I employ analog inserts on a live sound console. The ability to host plug-ins under a shell that has the I/O of a DAW without the recording capabilities would eliminate the need to carry a ton of rack hardware; it would allow the use of my favorite plugs with most analog consoles; and—as I already travel with a laptop—the only addition to my road pack would be the audio interface. I'm familiar with Muse Research products, but they don't have sufficient analog I/O and only run VST plug-ins. Waves has answered the call with the MultiRack, a virtual rack that runs Waves Native plug-ins and works with a wide variety of audio interfaces.

WavesLive MultiRack lets users load up to 64 racks with eight plug-ins each.

MultiRack comes in two flavors: Native and SoundGrid. The subject of this review is MultiRack Native (PC/Mac). MultiRack SoundGrid runs with Yamaha's WSG-Y16 mini-YGDAI expansion card in a variety of Yamaha digital mixers. I ran MultiRack Native on a MacBook (2GHz Core 2 Duo, 4GB RAM) and on a MacPro Duo (2x 2.66GHz dual core, 5GB RAM) using MOTU Traveler and 2408 Mk3, as well as Digi 002R interfaces. It's important to realize the MultiRack is a platform and though Waves bundles it with IR-L (convolution reverb) and H-Delay (echo), you'll probably need to purchase additional software. MultiRack does not host plug-ins from other manufacturers and it requires an iLok (not included).

PRODUCT SUMMARY

COMPANY: Waves Audio
PRODUCT: MultiRack
WEBSITE: waves.com
PRICE: $372, including H-Delay and IR-L Convolution Reverb
MINIMUM SYSTEM REQUIREMENTS: Windows XP or 7, Vista; Mac OS 10.4.11

PROS: Excellent sound. Stable. Easy to use. Outstanding flexibility.

CONS: Latency could be an issue in certain situations.

Easy Load and Go

MultiRack has an easy learning curve, the only tricky part being the assignment of hardware I/O to the virtual rack (details to follow). The software opens to an empty box into which you install effects racks. One "rack" can include up to eight plug-ins. Double-clicking a blank panel opens a message asking how many racks you'd like to add and whether you'd like them to be stereo or mono. You can add up to 64 racks, and you can change a mono rack to stereo or vice versa at any time without corrupting the signal flow. Click on "+" in the main rack window, and a plug-in menu drops down. Select a plug and it's loaded into the rack. Each rack has an on/off switch, bypass, mute, Name window, Group menu, meters and faders for I/O level, and buttons that you use to open the I/O menu.

A MultiRack Session contains the rack(s), I/O settings, plug-in assignment and sequence per rack. Sessions run in either Show or Setup mode. Setup mode lets you change I/O, add or delete racks, and add/delete/edit plug-ins. Show mode locks I/O assignment and negates the ability to add or delete racks or plug-ins. (Plug-in parameters may always be edited.) In Setup mode,

I created a rack for each console channel I wanted to process, added the desired plugs and then used snapshots to store settings on a per-song basis. Snapshots don't change the routing or plug-in complement per rack (no big deal), but they do store plug-in parameters. This was a great tool for working with a band that had more than one lead vocalist, where I'd want a delay on the lead voice for one song and wanted to turn it off when the same person was singing backup. MultiRack's Overview displays small graphics of every rack in a session, with the ability to open them by double-clicking.

In Setup mode, clicking on the None button (which is situated alongside the input or output faders) opens an I/O menu. The first time I used the MultiRack through the MOTU Traveler I hadn't read the manual, yet after patching the console's analog inserts to Traveler's eight I/Os, and assigning racks 1 through 8 to Traveler I/Os 1 through 8, respectively, MultiRack came to life. Unlike most DAWs, MultiRack assigns sequential numbers to I/Os without honoring the names used in the host's audio system. So when using the Traveler with Digital Performer on my laptop, inputs 1 through 8 show as up "MOTU Traveler Analog (1-8)," and inputs 15 through 22 (via ADAT Lightpipe) show as "MOTU Traveler ADAT (1-8)." In MultiRack, these simply appear as numbered I/Os. It was a bit confusing at first but certainly not a disaster. Perhaps a future revision of MultiRack could acquire the I/O names used by the audio system.

Am I Latent?

One thing that concerned me was latency: No matter how you slice it, AD/DA conversion and sending the signal to a computer for processing equals a slight delay. In a live setting, it was not noticeable, mostly because there's already "latency" (delay due to the speed of sound) from the backline and/or stage to the mix position. However, I did notice when processing drums that at times I could hear a slight flam, typically when I MultiRack'd the kick, snare and toms but not the hi-hat and/or overheads. The processed tracks would be subject to latency but the unprocessed tracks would not, so, for example, any leakage of snare into the hi-hat mic produced a flam.

There are a few ways around this. First, MultiRack's Preferences let you set the buffer size. Reducing buffer size increases the processor load while reducing latency, and vice versa. Tune this to your needs by listening for clipping and watching MultiRack's SYS indicator. Second, MultiRack can organize channels into Groups, providing time alignment of group members (automatically or manually) by delaying all channels to match the one with the most latency. Some plugs are more latent than others (e.g., inear phase EQ, linear phase multichannel compressor, etc.), so it is obvious that Waves' developers have done their homework in this area because the alignment worked perfectly. Latency may be more apparent in the studio so you may have to record the return from MultiRack and manually align the processed track to match the position of the original.

As for the processors, I used a couple new Waves plug-ins—the H-Comp and H-Delay—and they sounded great. I also liked the API bundle and used the 550b EQs across my drum inputs, especially on certain live consoles where the EQ left something to be desired.

Ready for Prime Time

Stringing a chain of processors into a channel easily with minimal patching provides incredible flexibility. I don't have the luxury of traveling with production, so being able to use my "rack" at the next venue (and console) was fantastic. I do, however, have a minor wish list: It would be nice if mutes could be linked in a group, and I'd like the ability to create and recall templates. Finally (I suspect this is easier said than done), MultiRack outputs cannot be shared. If they could, users could then "save" console channels by returning more than one processor back to the same input.

All that aside, MultiRack was easy to use and trust. I found it extremely stable, which is a must in live situations. And once you have the buffer size dialed in, you won't hear a click, pop or glitch. MultiRack may be the coolest addition to touring since Internet on the bus. ■

Steve La Cerra is the front-of-house engineer and tour manager for Blue Öyster Cult.

Slate Digital Trigger Drum-Replacement Plug-In

Well-Designed GUI, Unique Features, Great Sounds

Trigger by Slate Digital is a cross-platform (Mac/PC) drum-replacement plug-in supporting VST, RTAS and AU formats. It offers dual operating modes: Live for near-zero latency, real-time performance triggering; and Accurate for studio use, which offers 11 ms of sample latency.

Trigger comes with the Steven Slate Drums library, which includes 29 kicks, 44 snares and 26 toms that are each broken down further into layers by subsets labeled Z, NRG and SSDR, resulting in a dizzying number of available choices. For example, within each drum, subsets Z1, Z2 and Z3, respectively, have some overheads mixed in, a slightly compressed attack and enhanced decay, and are straight, close-miked samples. The NRG samples were recorded at NRG Studios' A Room in North Hollywood using unprocessed stereo room mics, and the SSDR samples are ambient stereo options that were recorded in a concrete warehouse and processed with EQ, compression and other effects. Trigger also includes a Deluxe set with a Black Beauty snare, DW kicks (hard beater and soft beater) and a Heuer Crank snare. All samples were recorded directly to 2-inch tape through premium mics, preamps and processors, and they sound like it—they are excellent.

All of Trigger's operations are performed on one screen.

Comfy Yet?

Getting comfortable with Trigger is an easy matter, with its one-stop GUI being its greatest asset. All operational tasks are performed within one window; there are no tabs and there is no need to leave the interface. This was a great time-saver, allowing me to load, audition, mix and adjust my samples quickly. Each instance of Trigger will hold six unique samples. Simply click on one of the six Empty buttons, and browse to the drum of your choice.

Each sample has its own mixer, with volume, panning, solo, mute and polarity controls; ASR (attack/sustain/release) controls; tuning (±100 cents); and dynamics and velocity curve controls. Dynamic curve settings let you set how far the sample's loudness will vary when triggered. This is great if you have an inconsistent drummer and you want the kick or snare hits to sound more even. The Velocity control sets the linearity of the sample, where you can make a soft trigger's sample louder and vice versa, or keep it linear. The user's manual has some handy starting points for these values should you get stuck. Once you have a group of samples you like, you can save them as a preset for later re-use or recall. The drum library comes loaded with some presets if you want to grab and go, but I had more fun making my own.

One Window Does It All

Trigger's main display shows the waveform, main mix control (0 to 100 percent), highpass filter and Suppression amount (more on that later). You can also audition selected samples or the output of all samples by clicking respectively in the display's left or right quadrant. I used this feature over and over; it's a valuable way to quickly get an idea of which of my mix elements needed tweaking. The main window also toggles to a Settings window to set the Detection mode (live or accurate); MIDI options (in/out, on/off, note selection); Articulation controls (more on those later); and the Browser Preset Path.

Below the main display you can set the incoming trigger's volume and the plug-in's master output level. Other essential controls include Sensitivity, which sets the engine's responsiveness to low-level input—aka noise and leakage; Retrigger, which sets a "dead zone" after a trigger input to keep the engine from flamming a sample; and Detail, which is the gate that allows the incoming trigger into the engine for re-sampling.

The well-laid-out GUI operates smoothly, providing the exact amount of visual feedback needed to tweak the settings. For instance, the scrolling waveform display enters from the right just as you're triggering the sample. This display gives you instant confirmation when you alter the Suppression, Sensitivity or Retrig-

PRODUCT SUMMARY

COMPANY: Slate Digital
PRODUCT: Trigger
WEBSITE: slatedigital.com
PRICE: $250 (street)

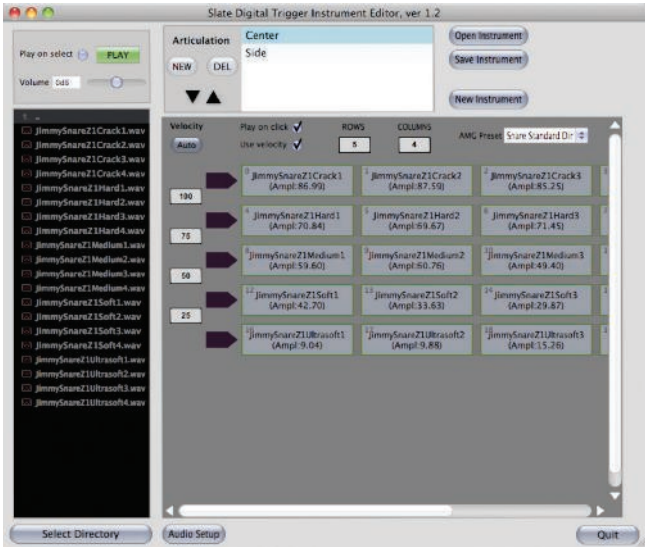
PROS: One-stop GUI is easy to learn. Suppression feature. Great sounds.

CONS: Trigger is not directly compatible with external sample sets.

ger settings. The suppressed inputs turn red in the display; Sensitivity is measured by the distance of the horizontal line above/below center; and the Retrigger "zone" after the sample hit turns red and gets wider as you turn it up. The ASR, Dynamics and Velocity settings also have generous displays that give you visual cues on what exactly you're doing when you turn those knobs. Trigger gets high marks for interactivity and user feedback.

If I had to pick a favorite feature, it would have to be Suppression. This nifty ducker lets Trigger ignore everything but the sample you want triggered. To use it, you have to instantiate Trigger on a stereo instrument input. Simply send what you want triggered to the left input and what you don't want triggered to the right. Then adjust the Suppression control in the main window (30 to 45 worked for me) until you get the desired result. This allows you to set the Detail incredibly low so you're sampling on the leading edge of the trigger without missing low-level nuance. This feature will save you hours of tweaking.

Speaking of tweaking, Trigger's controls can be automated, if desired. I found this necessary at the end of one song where the band broke the song down to a soft exit. I automated the Sensitivity and changed the articulation to ignore the loud samples, and that was that. The Articulation settings I just spoke of let you filter out soft or hard hits on toms, kicks and snares, providing two or four levels of nuance, depending on the drum.



The Instrument editor is intended for porting external samples into Trigger.

Options, Options

I'm a Pro Tools user and do a lot of session prep in LE and M-Powered on a laptop. During the review, I was prepping a project for a mix where running Trigger live along with my regular mixing setup would pose a DSP challenge for my Pro Tools TDM host computer. For this reason, I needed to commit to my sounds and record them into my session. Because the non-TDM Pro Tools Version 8 doesn't offer delay compensation, I used Nuendo 5 and Trigger to replace the drums and take advantage of the DAW's delay compensation. (This review was written before I could get my hands on Pro Tools 9, which now has delay compensation in the Native versions.) Once I figured out the workflow, it was an easy matter to tighten up my drum kit with Trigger, record the sounds and use Nuendo 5's new Batch Export feature to get my tracks out to Pro Tools and into my mix session.

This workflow also gave me a chance to triple dip and see how well Trigger triggered, as well as how well Nuendo 5's Delay Compensation and Batch Feature worked. Everything worked excellently. Once the recorded Trigger samples were alongside my original tracks in Pro Tools, I did a quick accuracy test by setting my Pro Tools Transport window to read in samples, then tabbed-to-transient on my kick, snare and tom hits, and compared them to the samples on the Trigger tracks. They were all spot-on to the sample. Impressive.

Comparative Analysis

The elephant in the room is how Trigger compares to its primary competition, WaveMachine Labs' Drumagog 5. Comparatively speaking, Drumagog 5's filter section offers a fully parametric EQ with bandpass, shelving and Listen options, whereas Trigger's filter section is fixed. Also, Trigger has no effects; it cannot apply plug-ins, doesn't offer MIDI output in RTAS and AU formats, and doesn't offer the depth of instantly compatible sample libraries that Drumagog offers.

Slate Digital is releasing new Trigger sample sets in Q1 2011 and admittedly has some catching up to do. They are also working on new features that expand MIDI capture/export functions and link the Dynamics and Velocity curves for easier operation. Currently, you can port samples into Trigger using the included Instrument Editor, but this is clunky. There's no batch import/export facility, which means you'd have to individually import and save multilayered samples, figuring out the layering options and other sample nuances as you go. It wouldn't be easy. I found the Instrument Editor's manual to be very basic, and it doesn't offer tips on optimizing your sounds and settings like Trigger's plug-in manual does.

The bottom line for me: Trigger's WAV display looks better and offers feedback that is more useful and visual than the competition's, and I liked the simplicity of its interface. All operations are on one screen, without tabs, right in front of me, ready to adjust. I didn't miss the effects and processing options, as I prefer to apply these outside the plug-in. GUI preferences aside, Drumagog 5 shines in its access to more sounds. You make the call.

Pull the Trigger

Trigger is an excellent drum replacer. The Suppression feature alone is worth the price of admission and is simply brilliant. I like how the tech disappears once you get your head around basic operations. Although you do have deep levels of adjustment across a number of parameters, for the most part it works very well without a lot of tweaking. In short order, it's easy to load sounds, audition them individually or in a group, and then hear them triggered accurately. But don't take my word for it: Steven Slate gave a demo of the product at the 2010 Esquire House studio and engineers David Rideau, Ed Cherney and Tony Maserati were all as impressed as I was. It's a time-saver, sounds great, is easy to get around and the tracking is spot-on. What's not to like? III

Kevin Becka is Mix's technical editor.

By Kevin Becka

Royer R-101 Passive Ribbon Mic

Affordable Transducer for Road and Studio

Passive ribbon microphones represent a category of transducers that really makes my day. Their tonal color, pattern characteristics and transient response are unlike any condenser or moving-coil dynamic microphone. However, unless you are careful or the manufacturer builds in protection, they are sensitive to wind and drop-shock, not to mention phantom power, which in some cases can turn any passive ribbon mic into a mere paperweight. While the Royer R-101 ($895) reviewed here has the same phantom-power issues that any passive ribbon mic has, Royer has gone a long way in the design to make the mic more sturdy and "amateur-resistant."

The matte-black R-101 ships with a sturdy, elastic spider-mount and case, and this mic is longer and more rotund than Royer's other familiar passive model, the R-121 ($1,395). Both microphones use the same 2-inch, 2.5-micron-thick corrugated ribbon. Yet, while the R-101 has a triple-layer windscreen that reduces proximity effect, the R-121 has a single windscreen. The R-101 also has an internal shock-mount; the ribbon transducer screws onto a plate that is separated from the mounting beneath it by four silicon grommets. These design features make the mic more forgiving when it isdropped and when wind is introduced directly onto the ribbon—neither of which is recommended, of course. The ribbon element is so well-protected that during Royer's torture tests, which involved using an air compressor, the manufacturer really had to go to extremes to cause the R-101 model to fail.

PRODUCT SUMMARY

COMPANY: Royer Labs
PRODUCT: R-101
WEBSITE: royerlabs.com
PRICE: $895

PROS: Very sturdy design. Good-sounding, entry-level mic, depending on the application.

CONS: Not a go-to mic for finely detailed recording.

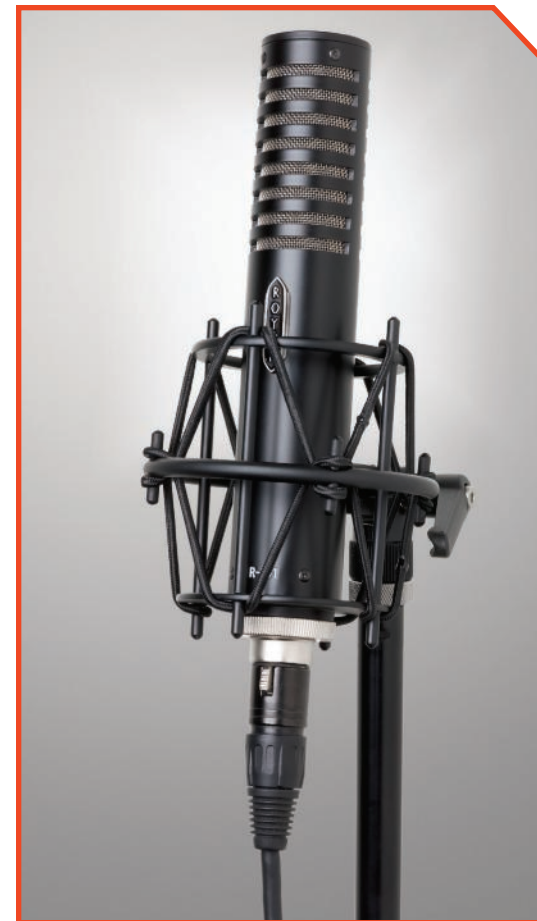
Just Use Me

Because of its design characteristics, the R-101 is best suited for higher-SPL applications where the top-end needs taming and detail in that range is not the main thrust of the recording. For example, this microphone is not a good choice for drum overheads or lightly played acoustic guitar or piano. However, the R-101 sounds great in front of a guitar amp or on hand percussion.

I first heard the R-101 used on a Fender guitar amp that had been placed in front of the speaker just where the dust cover meets the cone. I A/B'd it with a Cloud active ribbon microphone. The R-101 exhibited some prominent bottom end and hung in well with the Cloud ($1,799), which had a more pronounced midrange. The track sounded great either with the R-101 alone or with the Cloud mic as a partner.

Next, I parked the R-101, the Cloud and an SE Electronics Voodoo VR1 ($799) passive mic in front of a kick drum in a tight array and used the Manley MicMaid to audition all three through a single SSL E Series preamp. On two separate sessions, the Voodoo VR1 beat both the Cloud and the R-101, providing the tightest and best low-end thump. However, in another session the R-101 rocked at the bottom of a floor tom with an AKG D 112 at the top. This combo offered plenty of stick definition and boom when I flipped the R-101 out of polarity.

The R-101 was just the ticket for shakers, bells and Vibratone on another session, taking the edge off the hand percussion while taming the transients and seating them well in the mix.



The R-101 has a triple-layer windscreen system.

Do You Need 101 Reasons?

The R-101 is a good-sounding, entry-level mic. Of course, the question will arise: "How does it hold up against to an R-121?" The answer is, pretty well. Yes, the R-121 is richer, has more bottom end, is slightly more open at the top and offers about 1dB more of output. But the questions for you, the reader, are: Do I have roughly $500 more to move up to the R-121 and what will be the main use of this mic? The upside of the R-101 would be its almost windproof ribbon and resistance to drop failure. If you're taking your act on the road and recording tracks, or are looking to get into the ribbon game for not a lot of money, this is your mic. III

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by HARMAN

iZotope RX 2 Advanced

World-Class Restoration Software Becomes Turbocharged

iZotope's critically acclaimed RX 1 restoration software offered impressive processing for removing clicks, hum, broadband noise and even isolated events such as chair squeaks from audio files. Two updated versions of the software, RX 2 and the more-powerful RX 2 Advanced, add a multitude of features for even more effective restoration and easier archiving.

The software comes in both stand-alone and plug-in versions. The stand-alone version includes a world-class spectrogram with floating waveform overlays and several processing modules that can be used either independently or in combination (see Fig. 1). The Declipper, Declicker & Decrackler, Hum Remover, Denoiser and Spectral Repair processing modules included in the stand-alone version can also be instantiated as separate DAW plug-ins in RTAS, AudioSuite, VST, MAS, AU and DirectX formats. (The Spectral Repair plug-in includes essentially the same spectrogram as the stand-alone software; the plug-in provides offline processing and is not compatible with some hosts.) The stand-alone versions of RX 2 and RX 2 Advanced also offer a 6-band equalizer, gain adjustments (including four types of fades), L/R channel-balancing controls (including phase rotation) and a real-time spectrum analyzer.

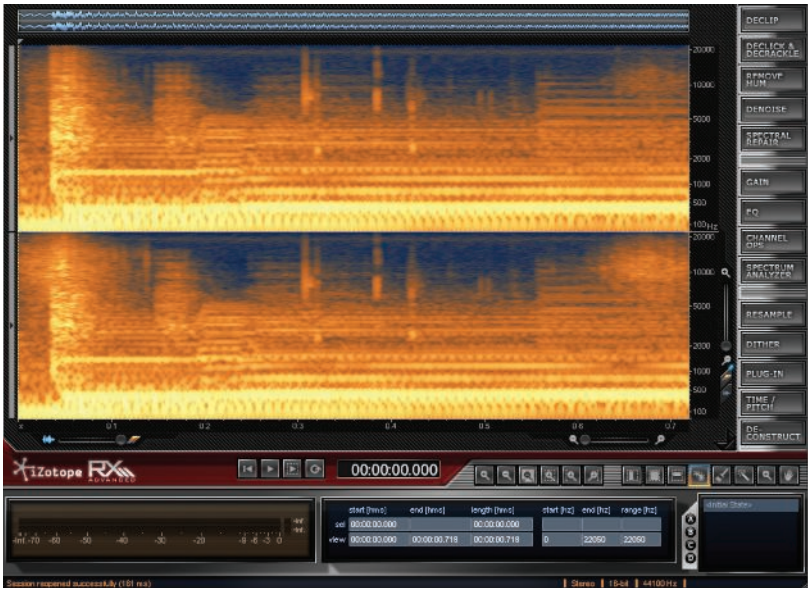

Figure 1: The stand-alone version of iZotope RX 2 Advanced. The right side of the GUI provides access to processing modules. Clicks in the audio file are displayed as three vertical lines in the center of the golden spectrogram, in which the floating waveform overlay is disabled.

New Tools

Why upgrade from RX 1? RX 2 includes new freehand (paint-brush and lasso) and automatic (Magic Wand) tools for selecting unwanted events (clicks, dog barks, fret buzz and so on) for attenuation or removal in its spectrogram. You can adjust pre- and post-roll around selections in the spectrogram. The new Decrackler is indispensable for restoring vinyl recordings. The Hum Remover can automatically find the base frequency in need of processing, and the Denoiser and Declicker algorithms have been improved since RX 1's release. You can chain multiple processing modules together when batch-processing files. Your edit history is automatically saved when you quit, and it's restored after a crash.

RX 2 Advanced includes all of RX 2's features and more. An adaptive Denoiser mode removes background noise that changes over time, a lifesaver for video post. A new Deconstruct module lets you accentuate or attenuate noisy and pitched components of sound independently. (Imagine making a vocal track sound more breathy.) RX 2 Advanced features third-party plug-in hosting (one AU, VST or DirectX plug-in at a time) for processing spectrogram selections and batch processing. Other features include proprietary 64-bit SRC sample-rate conversion, MBIT+ dithering, Radius pitch-shifting and time-stretching, automatic azimuth re-alignment (for tape restoration) and a time-stamped log (invaluable for forensics and archival work).

The SRC, Time/Pitch and Spectral Repair processors work only offline in both RX 2 and RX 2 Advanced. All the other modules work in real time. I reviewed RX 2 Advanced in stand-alone mode and its plug-in versions in Digital Performer Version 7.21 (DP) using an 8-core Mac Pro running OS X 10.5.8.

Clean-Up Time

RX 2 Advanced proved invaluable while re-recording (engineering the final mix for) an independent documentary video. Dur-

PRODUCT SUMMARY

COMPANY: iZotope
PRODUCT: RX 2 Advanced
WEBSITE: izotope.com
PRICE: RX 2, $349 ($149 upgrade from RX 1); RX 2 Advanced, $1,199 ($899 upgrade from RX 1)

PROS: Extremely transparent and highly effective processing. Very versatile. Spectral Repair performs miracles. Data survives crashes.

CONS: Some modules only available in stand-alone version. Hum Remover is buggy. Spectral Repair GUI needs improvement. Documentation is somewhat vague.

Figure 2: The Denoiser plug-in allows independent attenuation of tonal and broadband noise components.

ing one outdoor scene, the Denoiser greatly tamed broadband noise from distant traffic that all but buried very quiet dialog. I could achieve more than 4 dB of noise reduction without producing any watery artifacts or dulling high frequencies. In another scene, the Declipper completely rebuilt squared-off waveforms and purged distortion on a dialog track that had been recorded too hot and had clipped hard. Amazing.

The Hum Remover includes a mode that supposedly lets you hear only the hum component of an audio file for easier adjustment of control settings, but I heard total silence instead. While moving some of the plug-in's controls, audio is momentarily passed through unprocessed, which is a distraction when fine-tuning settings. Despite these annoyances, the Hum Remover was phenomenally effective in removing 60Hz hum and its first and second harmonics from a dialog track recorded with a poorly grounded lavalier mic. I could completely remove the hum without significantly changing the track's timbre. And on a Foley track, Free mode let me manually dial in the corrective frequency and Q settings to eliminate a 153Hz hum of unknown origin.

On a voice-over track, Declicker seamlessly removed lip smacks while only very slightly reducing depth. And the Denoiser transparently reduced broadband noise around 9 dB on a noisy music track (see Fig. 2).

The Miracle Worker

Spectral Repair can remove sounds that no other processor can touch. It uses interpolation of surrounding material to seamlessly fill in the resulting holes. I felt most comfortable using the plug-in version of Spectral Repair. As the audio files for the video didn't include timecode metadata, exporting to the stand-alone version would have made subsequent lock-to-picture of the repaired files prone to error after importing them back into DP. That said, the interfaces for the stand-alone and plug-in versions need improvement.

The plug-in version offers real-time previewing (allowing you to hear the results of your control settings before rendering), while the stand-alone version currently doesn't and requires a workaround. With the stand-alone version, you can undo, change your settings and process your selections again to hear the result of different settings. Alternatively, you can use the included Compare function to cache the effect of different settings for comparison purposes before committing permanently; after the caching is completed, you initiate playback to hear the cached results in turn. Neither the Undo nor Compare workarounds allow pre- and post-roll playback around the events you wish to process (the plug-in allows this), forcing you to evaluate the processing of split-second-duration events in isolation from the surrounding material you wish to preserve.

Despite its shortcomings, the stand-alone version of Spectral Repair offers a few advantages over the plug-in. Its spectrogram has a scrolling playback wiper that makes it much easier to identify the exact location of noises you want to eliminate. (iZotope hopes to include this feature in the plug-in in a future release.) The stand-alone version can also automatically find similar events to the one you've currently selected; this makes it much easier to, for example, remove several chair squeaks in turn without having to separately search for and manually select each one for processing.

I got my best results using the Lasso tool to select multiple objects—by drawing a border around them with my mouse while holding the Shift key—to process in the spectrogram. To my amazement, I was able to completely remove three very closely spaced and loud broadband clicks embedded in a music production's final mix without inflicting any audible penalty whatsoever on the desired material. (The frequency bandwidth of the clicks was too wide for the Declicker to be effective.) Like removing sugar from a cake after it had already been mixed and baked, Spectral Repair did the impossible.

Maybe I'm Amazed

Most of the modules for RX 2 Advanced work brilliantly. The Hum Remover is a little buggy but nevertheless yields terrific results. The user interface for Spectral Repair needs improvement but won't stop you from attenuating or removing seemingly intractable noises. The learning curve is a little steep due to a somewhat poorly written and insufficient operating manual.

Few products astonish this seen-it-all engineer. RX 2 Advanced—especially Spectral Repair—floored me. RX 2 Advanced offers a world-class toolset that's indispensable for anyone involved in audio restoration and archiving, forensics, post-production, music mastering and cleaning up noise-riddled tracks recorded in poorly isolated home studios. III

Mix *contributing editor Michael Cooper (myspace.com/michaelcooperrecording) is the owner of Michael Cooper Recording in Sisters, Ore.*

By George Petersen

Mackie Onyx Blackbird

Affordable FireWire Interface With High-End Features

Following the successful launch of its Onyx-i mixer series, Mackie now expands its Onyx Series with the Onyx Blackjack and Onyx Blackbird recording interfaces. Onyx Blackjack is a desktop 2x2 24-bit/48kHz unit with USB output. I was more interested in the single-rackspace Onyx Blackbird, a 16x16 24-bit/96kHz unit with eight Onyx mic preamps, 8-in/8-out ADAT, and word clock I/O and FireWire output. Blackbird can be used either stand-alone (connected directly to any device with 44.1- or 48kHz ADAT Lightpipe or S/MUX II at up to 96 kHz) or via FireWire to a PC- or Mac-based DAW. Unlike Mackie's Onyx-i mixer series, Onyx Blackbird doesn't support M-Powered Pro Tools, although the interface works with most other recording apps, including SONAR, Logic, Cubase, Digital Performer, Ableton Live, Mackie Tracktion 3 (bundled free with Blackbird) and Avid Pro Tools 9.

One of my pet peeves about interfaces is the way manufacturers tout these as having 16, 24 or 32 inputs, when that number typically reflects every single possible way audio can enter/exit the device. In the case of Onyx Blackbird, its 16x16 capability includes eight XLR analog inputs and another eight channels via the Lightpipe ports. With Onyx Blackbird, the extra ADAT-in port really comes in handy when cascading two units for full 16 analog input capability.

That said, Onyx Blackbird delivers. The first two inputs are what Mackie terms Super Channels; design-wise, they are identical to the rest but add nice touches such as a hi-Z switch for DI inputs, a highpass filter switch, independent phantom power switch for just channels 1-2, TRS insert jacks and a direct monitor section for listening to inputs 1 and/or 2 in the analog domain for no-latency listening. This section also includes a mono/stereo listening switch and a monitor level pot. When overdubbing in the studio, I used the latter to affect the balance between playback tracks, the source mic(s) and what goes to the headphone bus, making it great for creating quick "more me" performer mixes without having to jump through a lot of hoops.

Mackie's Onyx Blackbird offers eight Onyx mic pre's, 8-in/8-out ADAT, word clock I/O and FireWire output.

The other six analog combo XLR/¼-inch mic/line inputs (on the rear panel) also offer 60 dB of max gain, bicolor LED signal-present/overload indicators and the same preamp quality as the first two. There's no sense of "two nice ones and the rest"; for example, when miking drums, everything's sonically matched. The "master" section has two independent headphone outs with level controls and a switch for choosing to hear either the main mix or a custom mix created using the Blackbird Control software. There's also a Monitor Level control for adjusting control room level.

Blackbird Control

Installing the Blackbird Control app was a breeze. Rather than include a copy with the interface, it's a fast, free download, so when you install you'll have the latest version. There's no copy protection, so I put it on my MacBook Pro for Logic, desktop Mac for Final Cut/Soundtrack Pro and another version on my PC that runs SONAR. I was off and running in minutes.

Blackbird Control is a full-on matrix mixer that provides pan/mute/solo/fader/routing for all of the inputs, along with assignments for sample rate select (44.1, 48, 88.2, 96 kHz), internal or external clocking (from a digital source or the rear panel BNC word clock I/Os) and few slick tricks like onscreen phone mix level and muting control, and fast, high-res metering with peak hold. And within Blackbird Control, presets can be saved, cut, copied, pasted—a real timesaver.

All About the Sound

Flexibility is fine, but the worth of any interface comes down to the sound. The preamps are Mackie's Onyx design, offering ample headroom and excellent performance (mic-to-insert response is spec'd at only -1 dB from 10 to 150k Hz, and EIN comes in at a ultralow -127 dBu). I had no problem using the preamps with older, low-output ribbon mics, ranging from a vintage Lustraphone to a favorite pair of Royer SF-1s. Here, used as distant room mics, noise was never an issue, even when cranked way up. Even though it's a small point, I liked the highpass filters on the first two channels; fixed at 75 Hz with a steep -18dB/octave slope, they eliminated the LF rumble and muck without getting in the way of the music.

My only complaint is its lack of individual analog outputs for all the preamps, like the D-25 port on Mackie's Onyx-i mixers. This comes in handy in live location recording where you want to create a separate split for a P.A. feed, but in the studio, this is hardly an issue. On the digital side, the combination of Mackie's JetPLL jitter elimination with top-end Cirrus Logic CS5368 A/D converters and CS4385 DACs provide a level of performance that's far better than I'd dare to expect from an 8-channel unit carrying a $499 (street) price tag. Thumbs up on this one. III

PRODUCT SUMMARY

COMPANY: Mackie
PRODUCT: Onyx Blackbird
WEBSITE: mackie.com
PRICE: $629 MSRP

PROS: Simple interfacing. High-quality sound. Great pricing.

CONS: No individual analog preamp outputs.

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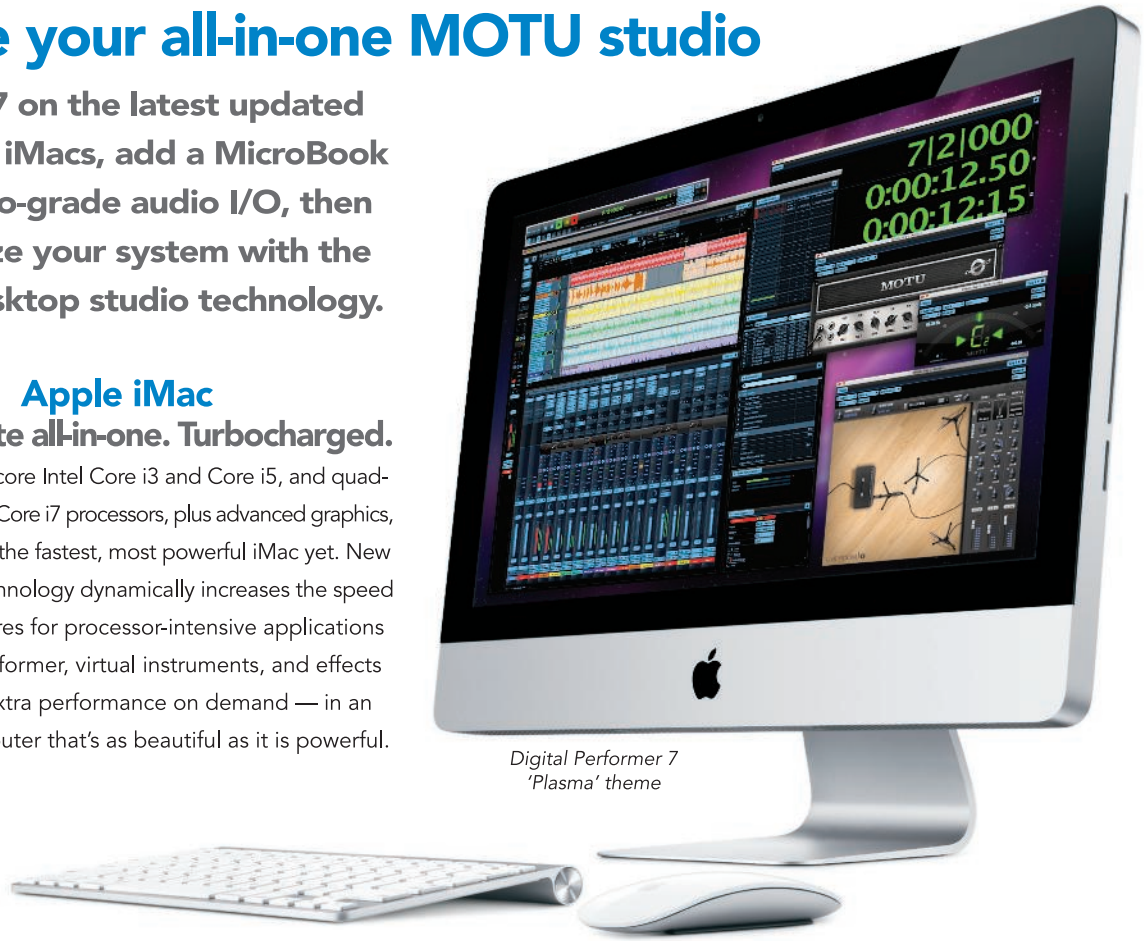

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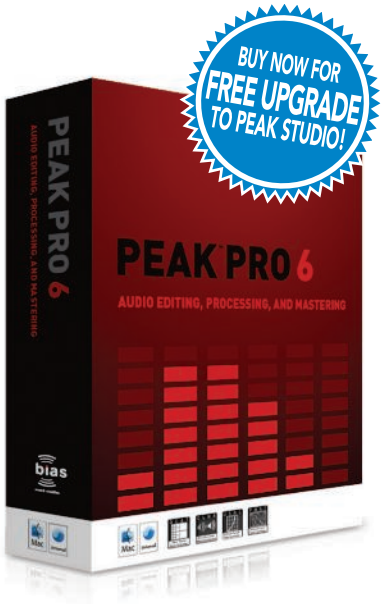

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Q&A

By George Petersen

Phil Dudderidge

Focusrite owner reflects on the company's 25th anniversary, Soundcraft, Led Zeppelin and the long, strange rock 'n' roll trip that brought him here.

How did you get started in audio?

I started out at 18 as a roadie. My principal qualification was having a driving license. I created a small fleet of vans and was driving bands all over Europe. At 21, I was working with a band called Soft Machine. After working almost exclusively with them for about a year, I needed a change of music and spoke to veteran P.A. builder Charlie Watkins. His WEM P.A. systems were ubiquitous in the UK—everybody from the Rolling Stones to you-name-it was using them. Charlie got me an interview with Led Zeppelin. I did front of house for them in 1970. There were no monitors, so I just turned a couple of speakers toward the stage like sidefills so the bandmembers could hear themselves.

I was using two 5-channel WEM mixers slaved together and 10 mics. We used different systems every night—Voice of the Theater systems, early Community Light & Sound stuff. But the Forum in Los Angeles had a flying system, which I had never seen before. It was built for McCune Audio by John Meyer—before he had his own company. That was the best-sounding system of the entire tour.

Seeing this huge opportunity, I went back to England and wanted to build sound systems. I worked for Hiwatt for a year, and in 1971 I started RSD, my own company, with another guy and Graham Blythe. A few months later, we founded Soundcraft to produce mixers. There were no proper [live sound] mixers at the time, which [was what] inspired me. In 1974, I found somebody with some spare booth space at NAMM. I showed a 16-channel mixer in an aluminum flight case and started selling mixers to Americans.

Why did you leave Soundcraft and buy Focusrite?

In 1988, our distributors, Harman, approached us about selling Soundcraft. I wasn't enthusiastic about it, but my partners were enthused so I went with the flow. In hindsight, I would have liked to continue running Soundcraft, but after 15 years of that I relished the opportunity to do something different. I thought I would change direction, but I jumped into the audio business created by the failure of Rupert Neve's original Focusrite business. It endeavored to do great things, but it was a small business trying to do things without the financial resources that Rupert had when he had a big business.

Did Focusrite's large-format Forté console have a lot to do with that situation?

The console product essentially killed the original company. It was very ambitious and they were taking deposits and using those to pay for the development of the console. It was a sad story—really one of business management naiveté. It was a monumental undertaking. We established the new Focusrite Engineering in 1989. Right after we bought the assets of the company, Rupert left the company, although he was very helpful during the transition. I would have enjoyed working with him.

We've grown progressively and re-invented ourselves a couple times during the past 21 years. After we acquired the business, we developed our own console—the one that's still at Ocean Way was derived not from the Forté, but around the original ISA 110 mic pre/EQ module that Rupert designed. Back in the early '90s, when Neve and SSL were battling it out with well-developed brands, we got caught in the crossfire in a declining market so we got out of consoles and concentrated on analog outboard gear.

Introducing the Red Range 16 years ago really changed the face of studio racks—from being black and silver to suddenly being bright red. Everything before that was purely functional rather than decorative, and Richard Salter—who designed the range—had a great inspiration. Later, Digidesign asked us to model the Red Range as plug-ins, and Richard had the bright idea of making the plug-in look like the hardware. It hadn't been done before, but now everybody does that.

What's new with Focusrite?

Part of our success comes from anticipating market demands for a changing world. We've become Focusrite the interface company and there's some exciting stuff coming along this year. Meanwhile, the advent of Pro Tools 9 has opened a huge market for us. Six years ago, we bought Novation and we'll be developing more products based on the successful UltraNova synth engine. We grew over 50 percent in the past 12 months, which is extraordinary in this economy and opening our own subsidiary in the States has helped us a lot. We have a great team and all the credit goes to them. III


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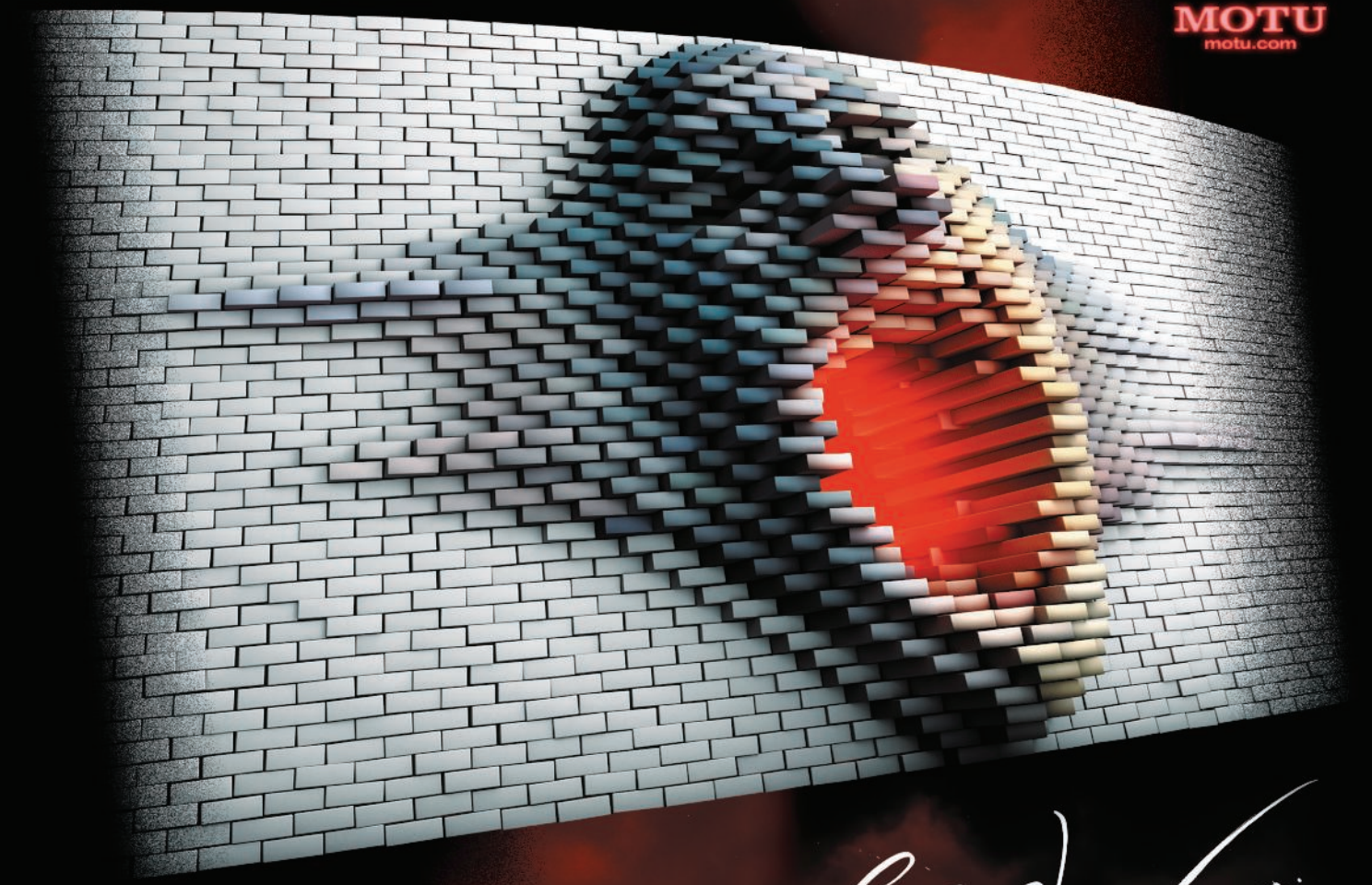

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