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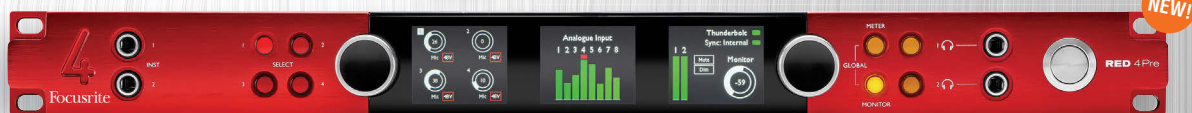
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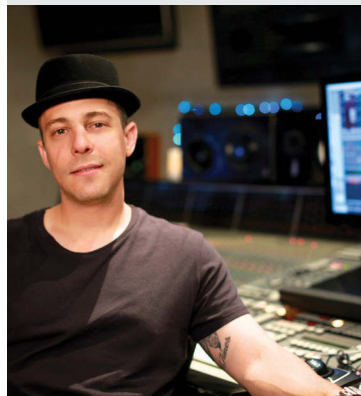


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Five Things You
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BY KEVIN BECKA

On the Cover: The percussion inventory lined up on the new Synchron Stage Vienna, looking up to the control room glass. Owned by VSL, with acoustics by WSDG. **Photo:** Heinz Zegg.

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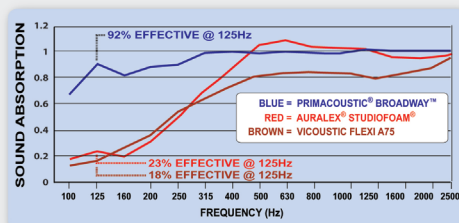
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From the Editor

STOP. LOOK. LISTEN.

We use the term “golden ears” every now and then in the pages of *Mix*, usually to describe an engineer whose taste and talents are beyond reproach and we’re not entirely sure why; they just are. In my early years at *Mix*, back in the 1990s, I remember it being attached primarily to mastering engineers, the Bob Ludwigs, Bernie Grundmans and Doug Saxs of our industry. Or to the rare talents of someone like a George Massenburg, who can design a parametric EQ and win Grammys for mixing. It’s a term of respect, and at the same time it implies mystery. What makes someone’s ears golden? And how do you get into the club?

My first real exposure to the concept of golden ears, in person, was through scoring engineers. I’ve written in this space before of how as a new editor at *Mix*, a colleague, Paul Potyen, took me to a 14-piece string scoring session for a Chevron radio spot. I saw the engineer pick out a bow-hitting-a-stand ‘clink’ as it happened. I hadn’t heard a thing. Later, at Skywalker Sound, I saw Leslie Ann Jones isolate a single flat note from a single third-violin on playback, within a full orchestra, deep into the piece. Needless to say, it was news to me.

I was lucky enough to attend a Bill Conti scoring session at Warner Bros, for *The Scout* and sit in the room with the musicians and then control room for playback and assessment. The quintessential fly on the wall. I was impressed later to find out that the amazing engineer Shawn Murphy traveled with his own set of PMC monitors. Same for the uniquely talented engineer Dennis Sands. Which brings us full circle, to this month’s cover story.

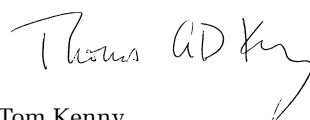
Sands has been serving as an audio consultant for the past year or so in the shakeout sessions at Vienna Symphonic Library’s remarkable new Synchron Stage Vienna. A meeting of Golden Ears. VSL has earned its place in the industry, with a reputation for meticulous attention to detail in its sampling packs. Painstaking precision over many years in fine-tuning its recording process. Think of the listening sessions surrounding the development of an orchestral library. It’s not that it is more difficult than doing rock drums or bass lines; it’s just that, well, it’s an orchestra, with

a built-in expectation of the highest quality. VSL knows this. That’s why they created a world-class home base in Vienna. For the Golden Ears.

But I’ve also learned over the years that you don’t have to engineer a John Williams score or sample a violin at 24-bit/384kHz to have Golden Ears. I was reminded of that in putting together two other stories for this month’s issue. The first is a profile of Carlos Rodriguez-Quiros and his new studio in San Juan, Puerto Rico. He’s a classical guitarist of some renown, and an instrument designer who has spent a lifetime exploring sound, first using his musician’s ear and now from a recording perspective. The connection he makes between the inside of a well-made guitar and the response of a tracking/mix studio is most insightful. His entire life is about listening.

The second is a profile of a new music documentary by long-time friend of *Mix* Michael Coleman, called *The Art of Listening*. Through a most interesting cast of characters—from luthiers and synth designers to singer-songwriters and A-level film composers, from Andrew Scheps and Warren Huard to Gabe Roth and Gustavo Santaolalla—the relationship between listening and music is revealed in very personal ways, whether in a musician’s relationship to an instrument or an engineer’s response at the console. The common thread is that at the very least, you have to take the time to listen.

Take the time to listen. It seems so simple and yet it’s become increasingly more difficult. I don’t have the answer to what makes someone a Golden Ears, but I have no doubt that those in the club stop every now and then and take time to listen.



Tom Kenny,
Editor



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Recording Industry Golf Tournament

The 2016 Recording Industry Golf Tournament will be held Monday, June 20, 2016, at MountainGate Country Club in Los Angeles, with a

shotgun start at noon. Engineer/producers Ed Cherney and Al Schmitt will return as Honorary Co-Chairs for the afternoon's festivities. Plus, this year's event includes a tennis clinic taught by a Country Club pro, as well as a tennis tournament, catering to non-golfers.

The RIGT is again being organized by seasoned event producer Karen Dunn of KMD Productions and will support the music program at A Place Called Home, a community center and safe haven in South Central Los Angeles for underserved youth ages 8 to 21 years old. Music and recording activities are offered within the program, and the APCH youth band performs and records on a regular basis.

Confirmed sponsors as of mid-April include the Audio Engineering Society, Audio-Technica, Bartels' Harley-Davidson, Bob Hodas Acoustical Analysis, Clyne Media, Hyundai, JBL, Music Connection, Record Plant, Slate Digital, studioexpresso.com, The Recording Studio Insurance Group and United Recording. Hyundai will once again be taking two players from the winning foursome to their Hyundai National Invitational.

For sponsorship information and to register, visit 2016right.eventbrite.com or call Karen Dunn at 925-708-0307.



Zenon Schoepe, 1960-2016

Zenon Schoepe, the founder and Editorial Director of international pro audio magazine *Resolution*, passed away on 10

April. He was 56 years old.

After successfully completing a degree in microbiology, Schoepe began his career in publishing as a journalist with the British Journal of Hospital Medicine. But a lifelong passion for music making, songwriting and home recording soon saw him gravitate to an editorial role on the UK-based *Sound Engineer and Producer* magazine in the late 1980s. Following this he developed a busy freelance career writing for publications such as *Billboard*, *Mix* and *Pro Sound News*, among others. After a period working as Executive Editor on *Studio Sound* magazine, in 2002 Schoepe launched and edited *Resolution* magazine. It quickly became recognized as one of the world's most respected brands serving the worldwide professional audio community, with an enviable reputation for insightful analysis, unbiased reviews and informed opinion.

"I've had the extraordinary pleasure of working with Zenon for the past 12 years," says Jeffrey Turner, *Resolution's* head of U.S. operations. "He was a loving person to his family and friends and a dedicated servant to the pro audio community. As one colleague aptly noted, Zen had an 'outstanding personality,' an observant and unassuming demeanor that was trumped by his great sense of humor, intelligence, consistent and uncompromising integrity, and unbiased approach to journalism. His voice will continue to resonate in the hearts and minds of his family, friends and the pro audio community, and in the pages of *Resolution* magazine.

As well as having a passion for pro audio, Schoepe was a keen cyclist, often taking part in public races on internationally known routes such as the Paris Roubaix and the Tour of Flanders. A love of live music, travel, cooking and fishing was underpinned throughout by his unwavering commitment in his role of devoted husband and father. He will be missed by everyone who had the privilege of knowing him.

Schoepe is survived by his wife, Susan Schoepe; daughter Olympia; son Florian; father Bogdan; and sister Bozena.

The family requests that no flowers be sent; however, any donations are welcome to either Macmillan Cancer Support or to CCHF All About Kids, a local charity that gives disadvantaged children residential activity and respite breaks. ■



Audio Masters Golf Tournament

The 19th Annual AudioMasters Benefit Golf Tournament returns to Harpeth Hills Golf Course in Nashville on Thursday, May 12, and Friday, May 13. AudioMasters is a production of the Audio Engineering Society Nashville Section on behalf of the 503c2 non-profit corporation Nash-

ville Engineer Relief Fund (NERF Inc.), created to assist members of the greater Nashville audio community in times of personal or family crisis.

Day One is the "JBL Professional AudioMasters Live Day," focusing on the live sound industry and welcoming JBL Professional as the title sponsor. Day Two is the "Sweetwater AudioMasters," the studio-community-focused day under the banner of perennial title sponsor Sweetwater Sound. Both days include breakfast, an open driving range, a four-person scramble, and awards receptions following the golf, along with an abundance of treats and beverages along the way.

Confirmed sponsors include Genelec, J Sound Services, DCR Digital Console Rentals & Rack Armor, Clyne Media, Solid State Logic (SSL), Pepper's Pro Shop with Vine Street Liquors, Black River Entertainment at Sound Stage, NTS Pro Media, Vintage King, API, Clair Global, Froggy's Fog, Echo Mountain Studios, Southern Ground Nashville, Welcome to 1979 Studios, Audio-Technica, Iron Mountain, Blackbird Studios, Crown Seating, The Recording Academy Nashville Chapter/P&E Wing, the Audio Engineering Society, Trew Audio, VeVa Sound, Dickinson Wright, Corky's BBQ and the Recording Studio Insurance Program.

Find more information at theaudiomasters.wordpress.com, and visit the AES Nashville Section at aesnashville.org.

Error Log

In *Mix's* April 2016 issue, in the Live Sound story "Grace Potter Goes Solo at 9:30 Club" on p. 28, it states, "The stage is movable, which was [co-owner Seth] Hurwitz's idea." The movable stage was actually the idea of a former employee of the 9:30 Club, Chad Houseknecht, in response to a brainstorming session organized by Hurwitz.

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On the Cover

By Wes Maebe // Photos by Heinz Zeggl

SYNCHRON STAGE VIENNA

VSL Builds Future-Proof Facility, With a Nod to History



The large Control Room A, with 96-channel SSL Duality ADAM SX6 main monitoring, and Neumann KH310 Auro-3D array. Inset: Film score engineer Dennis Sands, left, with VSL founder/CEO Herb Tucmandl at the SSL.

Austrian-based Vienna Symphonic Library GmbH, one of the industry's leading sample library and music production software developers, does not do things by halves. The VSL sample packs, known for their accurate, nuanced sounds, are used in some form by a majority of the top film composers worldwide.

Since no commercial studio could provide the size, isolation and extended availability to accommodate sampling sessions, VSL built their own Silent Stage. Several sample libraries

later, VSL wanted to step up the game and find a way to combine sampling and music creation at the highest level.

So it's no surprise to learn that VSL has built a world-class scoring facility and recording studio. Mix popped over to Vienna to spend a couple of days at the brand new Synchron Stage to find out how amazing the future of scoring sounds.

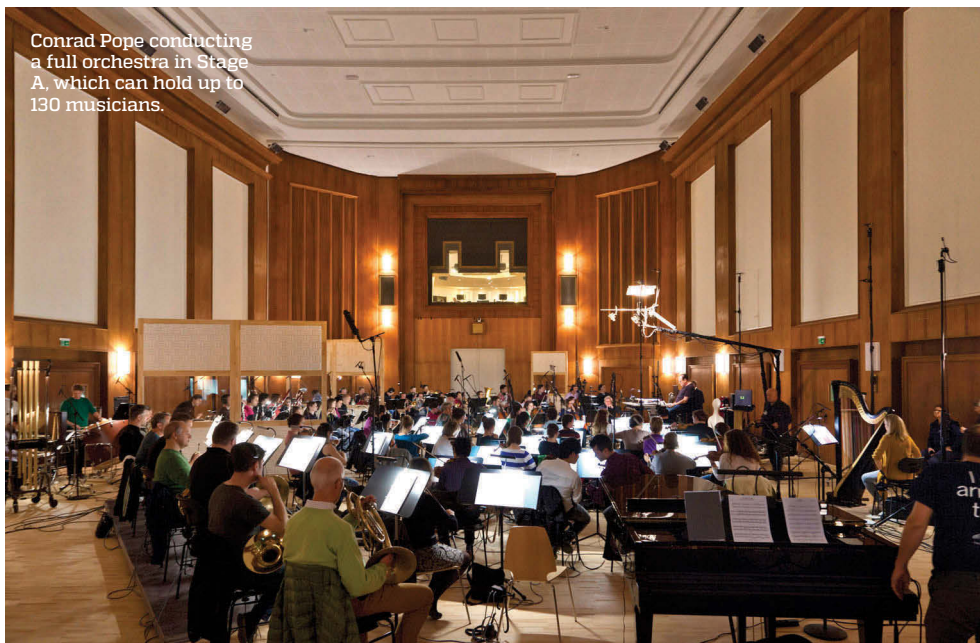
SAVED BY THE ORGAN

The story of the main hall dates back to the 1940s, when it was built as part of a film pro-

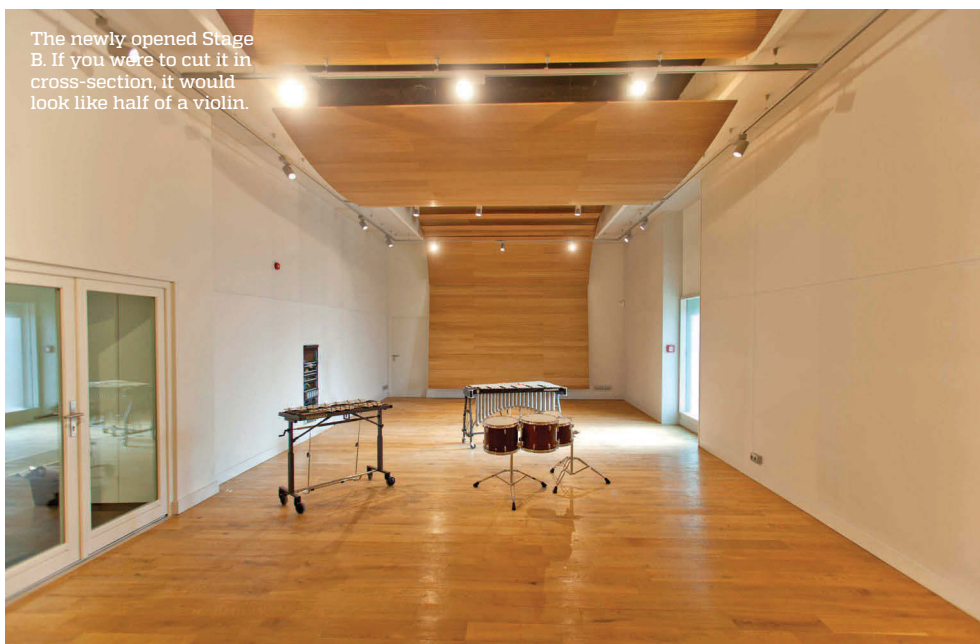


duction stage complex called Filmstadt Wien. Up until 1955, about 10 scores would be recorded each year. In the 1960s, it was hosting some of the world's most famous classical artists, such as Karl Böhm, Sviatoslav Richter, Yehudi Menuhin and Herbert von Karajan. By the start

Conrad Pope conducting a full orchestra in Stage A, which can hold up to 130 musicians.



The newly opened Stage B. If you were to cut it in cross-section, it would look like half of a violin.



of the 21st century, the hall was downgraded to a rehearsal stage and had fallen into disrepair.

So what saved the space? A unique cinema organ. Built by Alfred Lenk and Emil Wilck (hence, the name Lenkwil-Organ), the organ has three manuals and 11 ranks, built in a multiplex system. It offers special registers such as trumpet, saxophone, xylophone, harmonica, harp, drums and effects, including horse gallop, locomotive, car horn, thunder, cow bells, bird song, etc. It's the only one of its kind still housed in its original location, and it had only been used a few times. But at the end of the 1980s, the bellows and the cable harness were removed, making it unplayable. Still, this beast ensured

that the building was landmark-protected and saved it from demolition.

Enter VSL Founder Herb Tucmandl and his team, who about four years ago started thinking about having their own scoring stage. Proposals were already being drawn up for a new build when Tucmandl got in touch with friends and colleagues from the Austrian national public service broadcaster, ORF. They told him about the legendary hall with an organ.

In 2013, VSL took possession of the building, and after two years of design and build in collaboration with Walters-Storyk Design Group and Schneider+Schumacher architects, Synchron Stage Vienna came to life.

ACOUSTIC FOUNDATION

Acoustically, the main hall had a head start by a couple of decades compared with the rest of the building. The woodwork looks and actually smells great, and it plays a huge role in the sound of the room. (According to legend, there were 30 carpenters on the job originally, and when World War II came along most of them were sent to the frontlines, leaving only three to complete the job—by hand!)

All recording and control room spaces in the 21,000-square-foot facility are completely decoupled from the building's structural shell, with the gaps between walls wide enough that a person can walk the entire perimeter of the building from the inside. The amount of space between the interior ceiling and the actual outside roof is so great that local realtors nearly faint at the thought of how many loft conversions they could create. Better yet, the gap serves as superior sound insulation.

All of this pre-WWII-era design and construction provided a great starting point.

Soon after the purchase, Tucmandl and his team started talking to various acoustic design companies and chose WSDG, developing a tight working relationship with Dirk Noy, managing director of WSDG Europe. As it is a protected building, Noy explains, they were very much limited to what they were allowed to alter.

In the 1940s, you couldn't really get the thickness of quality window glass that is used today to separate control rooms from recording spaces. The original hall had a small problem with low frequencies resulting in windowpane resonance, which at the time they mitigated by installing a six-ton moveable slab of concrete that could be lowered mechanically. Now, the old windows had to be modified, so three of the original 12mm panes were replaced with new 20mm and 24mm laminated versions. The pane on the live room side had to remain in situ, as per the building heritage department.

The live room floor had been modified several times over the years, and not necessarily for the better. "We had the lightweight concrete floor excavated," Noy says. "Then we designed a concert-hall grade acoustic hardwood floor with a 40mm air gap."

The big hall—which is 30 meters long by 17-19 meters wide by 10.5-12 meters high—had a set of original fabric panels that WSDG carefully replaced with identical-looking micro-perforated foil, smoothing out the low-mid frequen-

The Composer's Lounge, which ties into Control Room A via a massive Dante network.



cies and reducing a small bump at around 2 kHz. Stage A also contains finely tuned membrane absorbers that move in resonance with the incoming sound waves.

[To editorialize for a just a bit: Don't let the enormity of the nearly 6,000-square-foot space fool you; this hall sounds fantastic. The room has a very controlled sound—its 1.7-second RT60 is the smoothest I've ever heard. The highs and mids decay beautifully, and the low frequencies do

WSDG collaborator Hans Loeffler.

Control Room A is situated above the main floor, looking down through the studio glass, with multiple video links available. After looking at various combinations, it was decided that the second floor allowed for more people in the room. By employing stringent reflection control and a relatively low reverberation time, combined with extremely low ambient noise levels, Noise Rating Curves were brought

not overpower anything else, making it a versatile recording environment for a 130-piece orchestra and a small ensemble alike. Film composer Conrad Pope said, "This is the first room I've heard that will allow me to write for piccolo!"]

A BIG CONTROL ROOM

The Synchron Stage team's main request for Control Room A was that there be no reflected sound at the listening positions, and WSDG delivered that. The greatest challenge WSDG faced in Control Room A, meanwhile, was to create the intimacy and "closeness" of the sound the client desired in a space where 18 people can work comfortably. That's one reason you'll see and smell a lot of wood, with construction provided by local carpentry firm and longstanding

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Photo: Reto Storch

Sturgill Simpson

RED SKIES AT NIGHT

Sturgill Simpson Self-Produces 'A Sailor's Guide to Earth'

By Barbara Schultz

With his Top 10 country album, the Dave Cobb-produced *Metamodern Sounds in Country Music* (High Top Mountain, 2013), Sturgill Simpson endeared himself to classic-country fans. What a voice—almost like Waylon—and what a cool outlaw sound, not to mention his terrific original songs. Today, Simpson is often mentioned in the same breath as smash country star Chris Stapleton, also produced by Cobb.

But hold onto your hats. Simpson's latest, a self-produced album called *A Sailor's Guide to*

Earth (Atlantic), leads fans into new territory. While his core band remains intact, and his voice is as beautiful and evocative as ever, Simpson's new album incorporates a classical string section, sounds of the sea, and the old-school soul of the Dap-Kings horn section.

Simpson made *A Sailor's Guide* with engineer/mixer/producer/bass player David Ferguson and his assistant engineer, Sean Sullivan, in The Butcher Shoppe, the Nashville studio that Ferguson co-owns with John Prine. Ferguson—who came up engineering for Cowboy Jack Clement and has worked with the likes of Prine,

Johnny Cash, the Del McCoury Band, U2 and others—first heard Simpson's music while he was on tour a couple years ago with Bonnie Prince Billy and Matt Sweeney.

"Will [Oldham, aka Bonnie Prince Billy] had both of Sturgill's records and played them, and I was like 'Oh, this is good! Who is this?'" he recalls.

The funny thing is, Ferguson had already met Simpson, at a card game at Dan Auerbach's house. Auerbach had introduced his friends to "Sturgill," but the engineer had no idea of Simpson's music career at that point. However, they truly connected to make this unique album.



Sean Sullivan and David Ferguson

“He wanted to make a timeless record where the sounds were sweet, and it was always a concept record to him,” Ferguson says. “It’s a letter from a man lost at sea.”

To enforce the idea of being out at sea, some of the segues between songs include clips of waves, gulls and wind, and the odd bagpipe. But the foundation of the record was laid down by Simpson and his band.

“Our cutting room is about 30 by 28, and we put everybody out there in the room,” Ferguson says. “These are almost all live vocals; a big part of the drum sound is because it’s a live vocal and he’s sitting close to the drums. And he didn’t wear any headphones to cut. We had a little monitor speaker set up for him.”

Simpson told Ferguson he likes to sing into a beyerdynamic M 160 mic, which Ferguson appreciated. “Those ribbon mics will take a lot of sound pressure and they don’t leak very much,” Ferguson says. “You get any mic in a room with a bunch of drums, bass amps, and all that shit going on, and it helps to have a mic that doesn’t leak very much but has a warm, smooth sound.” Also in Simpson’s vocal chain: the same UA 6176 pre that Ferguson used with Johnny Cash, and a rented Fairchild 660.

On the songs that include acoustic guitar, such as the second track, “Breakers Roar,” Simpson plays while he sings and Ferguson captured his guitar with an AKG 451, into a UA 2-610 preamp, and to Pro Tools HD11.

“We also took a line off Sturgill’s guitar and ran that into a DI into the other side of the 2-610,” Sullivan says. “That was occasionally used to make the acoustic guitar stereo, or if we wanted to add an effect, we used that so we didn’t have to worry about the vocal bleed.”

On Laur Joamets’ electric guitar, Ferguson says, “We had a couple of amps hooked up at the same time. One was a Swart Atomic Space Tone, and the other was a Magnatone M10A. On particular mixes, we’d favor one or the other. But what I like to do, if the guitarist doesn’t mind vibrato, is to set the vibrato a little bit different [on each amp], and you

really get a wide stereo sound when you pan them out.”

Ferguson favors Royer ribbons for electric guitar miking, through his API mic pre’s. “Those APIs have a lot of good headroom,” he says. “Then it’s straight to Pro Tools.”

Electric bass, played by Kevin Black and guest bassist Dave Roe, was captured via a combination of amp-miking and DI. “We had a Blue Mouse into a Retro Powerstrip for bass amp and upright,” explains Sullivan. “We just moved the mic around, depending on what was played. The DI was an Avalon U5 into an LA-2A.”

Miles Miller’s drums are miked up with a Sennheiser e602 on kick, Shure SM57s on snare top and bottom, an SM81 on hi-hat, and Sennheiser 421s on toms. Also on those core sessions were Jeff Crow and Bobby Emmett on keyboards, including B-3, (Rode NT4s on top, EV RE20 on the bottom); Wurly, Rhodes and a Moog synth (all taken with Countryman DIs); and an upright piano: “We use AKG 414s on the sound board,” says Sullivan. “Our upright has the hammers hardened to give it more of a percussive sound, but when you mike it from behind, you can get a lot warmer tone, and the added benefit of isolation.”

Ferguson brought in pedal steel player Dan Dugmore to add to the track, but Simpson wanted any steel work on the album to be subtle and special: “We had the Swart and Magnatone amps set up for Dan,” says Sullivan. “The Swart has a great, deep tremolo and reverb, and the Magnatone has a pitch-shifting vibrato that can get really swimmy. Those two amps together made for a unique sound. Dan really embraced Sturgill’s music. The way he interweaves with the strings is beautiful.”

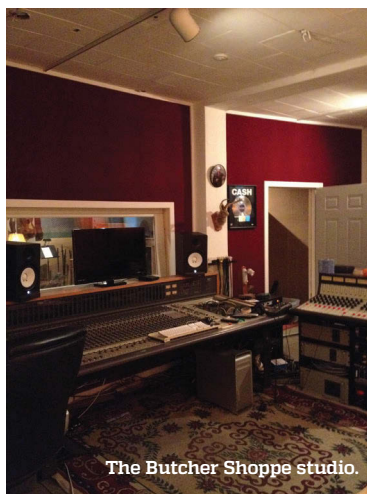
The strings themselves, as well as the horn section, were recorded at Atlantic in New York City. “Sturgill said we need strings and horns, so we

turn that over to [arranger] Jeff Steinberg, and he wrote the strings and horn parts. He really likes the Dap-Kings, so we called New York, and the powers that be said, ‘Sure, make it happen.’ I have to say, I’ve got nothing but praise for Atlantic on this record. They never said no to anything,” Ferguson says.

Ferguson and Simpson brought some of The Butcher Shoppe’s ribbon mics to New York, and then spent one full day on strings and one on horns. “I think there were three actual written horn charts, and then Sturgill and the horn players came up with ‘head charts’ for a couple of songs,” Ferguson recalls. “They said we were the first session in their new studio up there, but they had a 67 from the old studio that we used, and they had outboard API 412s. Strings went the same way, but we used condenser mics on strings—maybe a ribbon on the cello.”

Ferguson took those tracks back to The Butcher Shoppe to mix. Among his arsenal of tools on this project: an Ampex 2-track machine that came out of the former Studio by the Pond (Hendersonville, Tenn.) that he uses for slapback, and an EMT 140 plate reverb from the Grand Ole Opry. Ferguson also used the SoundToys Crystallizer plug-in, as well as Waves’ ADT doubler, and various UA plug-ins and outboard pieces.

Ferguson also added the sea sounds during the mix phase. “We did a lot of that, but we wound up cutting it way down before we went to mastering, because Sturgill wanted to keep it moving,” Ferguson says. “He wanted to make a painting, but he wanted to focus on classic sounds.” ■



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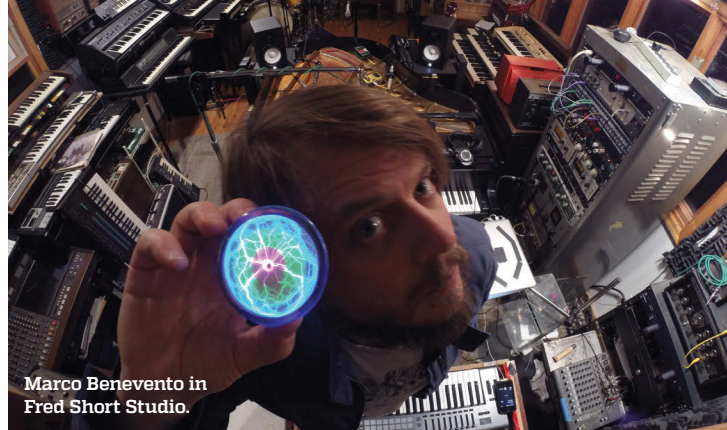
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DRUMS ARE 'THE STORY OF FRED SHORT'

Although songwriter/multi-instrumentalist/producer Marco Benevento has just released his sixth album, *The Story of Fred Short*, it's his first to be recorded in his own studio, aptly called Fred Short Studio, in Woodstock, N.Y. "I can't believe it's taken me this long to do it here," Benevento says. "Vibe is really important; I've got that here."

"Dropkick" is the first single off *The Story of Fred Short*, a pop-y, synth-driven track reminiscent of LCD Soundsystem. "All of our songs are pretty simple," Benevento says, "compared to our previous record, *Swift*, which was more psychedelic and reverbed out. 'Dropkick' especially is really minimalistic and simple. I just used one drum machine track, one analog track, one bass track for that song."

Benevento began constructing the song on a Casiotone RC-I—his secret weapon, he says, on this record and on *Swift*. "It's a rare drum machine attached to the Casiotone 8000. I use it basically on every song; I love it."



Marco Benevento in Fred Short Studio.

"Obviously touring with that Casio keyboard, it would've been busted many years ago," Benevento continues. "So basically I'll sample my drum machine and trigger it with a loop pedal with my foot and have it loop throughout the entire song. There are essentially two drum tracks going on, as well. There's the Casio drums recorded through the Ampex 620 amps, and then there's the real drummer. So you get a cross between a DJ sound, or a band that uses a lot of samples and a real-deal drummer."

Continued on p.44

THE WILD FEATHERS, 'LONELY IS A LIFETIME'



The Wild Feathers in St. Charles studio.

Pop/rock band The Wild Feathers recorded its latest in producer Jay Joyce's St. Charles studio (Nashville) with Joyce and his go-to engineer, Jason Hall. "St. Charles is a Baptist church dating to the

'20s or '30s," Hall explains. "It's a large space with a great natural sound that was just meant to record music."

Three Feathers sing live harmonies in the studio, as they do in concert: Taylor Burns into a Shure SM7, Ricky Young with a Neumann U 47 and Joel King on a Sony C500. Hall set up those three with their instruments in the main tracking room, then isolated Ben Dumas' drums. "They're such a vocal-heavy band, we didn't want to get drum bleed to the vocal mics," he says.

"We would work on a song a day," says Hall, adding that the sound of the song dictated which tracks were captured to an MCI tape machine and which went straight to Pro Tools. "Sometimes we'd do main live vocals with separate mics, and then get them all on one mic; they'd sing their parts again and we'd use that to stack with the other vocals. When you're all around one mic, you're not going to all be perfectly controlled in terms of which voice is standing out; those tracks have little imperfections that actually enhance the song."

—Barbara Schultz

BLACK STONE CHERRY, 'KENTUCKY'



Photo: Rob Fenn

David Barrick and Black Stone Cherry in Barrick Recording Studio.

Recapturing the energy and sound of their self-titled first album—that's what Black Stone Cherry set out to do in recording their latest release, *Kentucky*, reuniting with engineer David Barrick at Barrick Recording Studio in Glasgow, Ky.

"We know what our fans want from us, and we've learned a lot through the years," rhythm guitarist Ben Wells says. "It was such a freeing experience to produce and be back in our hometown studio again."

The Southern-rock group formed in 2001 in Edmonton, Ky., with Chris Robertson on lead vocals and lead guitar, Jon Lawhon on bass and backing vocals, John Fred Young on drums and backing vocals, and Wells on rhythm guitar and backing vocals. *Kentucky* is the band's fifth studio album.

In laying down the tracks, Barrick began by focusing on Young's drums as the foundation. "The guys played together with scratch vocals on the songs, and we captured all the parts live with the intention to overdub everything else," Barrick says. "They had good line of sight while tracking. This worked out great for in-the-studio arrangement changes."

They captured the country-tinged ballad "The Rambler" with Robertson's vocal and Wells' acoustic guitar recorded together. "Chris had his guitar amp in the vocal booth with him," Barrick says. "Ben's amp was in an iso booth, and he was in the main room with the drums. Jon went through an Ampeg DI and was in the large drum room as well for the live tracking."

Drums were miked with a combination of Shure, Audiz, Heil, AKG mics, with a Telefunken AR-70 stereo mic to capture the kit and the room, and three Audio-Technica 4033 mics left, right, and center for overheads. On bass, he used Ampeg Classic DI XLR output and Sennheiser 421 on the Ampeg 8x10 cab; and on guitars, a Shure SM57 and Cascade ribbon Fat Head II. The vocal chain was a Shure SM7B—the same mic used on the first BSC album—through a Brent Averill Neve 3405, Tube-Tech PE 1C, Tube-Tech CL 1B, and Empirical Labs EL-8. A Telefunken AK-47 was used on backing vocals. Everything was cut to Pro Tools HD4.

The recording sessions were laid-back, with Barrick and the band riffing off each other. "We just got in there and made music," Wells says. "We just wanted to make a badass BSC album that we know our fans will like and we know will go down a storm live." —Lori Kennedy



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Classic Tracks

By Robyn Flans



"OPEN ARMS"

Journey

VH-1 named it the greatest power ballad of all time, and even though it only went to Number 2 on the *Billboard* charts in February 1982, "Open Arms" remains Journey's biggest U.S. hit. Journey fans might dispute that "Don't Stop Believin'" is their most popular, but that song, which has become an anthem of sorts, thanks in part to politics and sports, went only as high as Number 9.

When the group went into Fantasy Studios in Berkeley, Calif., to record *Escape* in April of 1981, it was with the band that was going to catapult them to the massive success they were destined to achieve. They were not a new band by any means. *Escape* would be their seventh album. Gregg Rolie had just exited, drummer Steve Smith had joined the previous year and this would be the first Journey project for Jonathan Cain of Babys fame. He would have a lot to do with the future success of the band, and the beginnings of this song was left over—actually, a John Waite rejection—from The Babys and a display of what Cain and lead singer Steve Perry could do in the writing department.

With the evolution of players came a change of sound, and it wasn't necessarily one lead guitarist Neal Schon welcomed with open arms (pun intended) on this particular track.

Kevin Elson, who produced the album along with Mike Stone, corroborated what Perry told *VH1 Behind the Music*: that the session was made somewhat of an ordeal by Schon.

"It wasn't so much during the tracking," Elson says. "It really was while the vocals were going on. We had to send him away. You can't have someone sitting around in the control room making faces while the singer is trying to sing a song. Perry sang with such emotion."

Schon, whose roots were formed playing with Santana at age 15, would call those kinds of ballads "Mickey Mouse" or "Mary Poppins." He did not want to see the band becoming a different version of itself.

In the *Behind the Music* episode, Perry also mentioned that after the band performed the song in concert for the first time on tour, Schon commented, "Man, that song really kicked ass!" And Perry recalled, "I looked at him and I wanted to kill him."

Elson first heard the song at rehearsals in a nearby Oakland warehouse. He recalls that it was "short and to the point." "There was no point in having giant vocal choruses or guitar solos. It was just a beautiful ballad," Elson says. They spent six weeks in that warehouse honing the tunes before entering Fantasy.

"After the Fall" was probably the song we worked on more than any particular song in the studio, just getting the right feel because it was such a different feel for the band," Elson says. "'Escape' had so many sections, but everything else was just so straight-ahead. 'Open Arms' was not difficult at all. They played it at the warehouse quite a bit and rehearsed it. Then it was just a matter of what tempo delivered. That's why I always pushed for the singer to sing with the track. Because if you wait till the end, you might feel you wish it were a little slower or a little quicker."

And Perry always sang with the track. Elson says he believes that what set "Open Arms" apart from other power ballads of the time was Steve Perry's vocal.

"Whenever we tracked, he sang, just to kind of get to feel where the drums might push or where the guitar might lift," Elson says. (As an aside, Elson adds that the guide vocal on "Mother, Father" on the same album is actually what ended up on the record.)

"Everything we did, we did full-on," Elson says. "You would not believe what it would sound like if you pulled the vocals back. Basically, all those songs were so well-rehearsed before we went in. Nobody liked belaboring time in the studio, so everything was done live. The guitar solos were done live, we tracked everything. There was no piecemealing anything, with drum machines or anything. It was always a full-band performance."

Because of that, they tracked and mixed 16 songs in six weeks, to the total budget of about \$110,000.

There were two principal microphones they found best suited for Perry's voice, depending on the song.

"We used the Neumann U 47 and the M 49," Elson recalls. "We used



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the U 47 on the more up things like 'Escape.' The U 47 could accept a little more of the hard pushing." On the "Open Arms" vocals, they used the Neumann M 49.

"At the time, nobody built a windscreen, so we had a makeshift screen out of women's hose," Elson says. "These mics were so sensitive that you had to keep the moisture out as much as possible. Steve had so much air and moisture in his voice that he'd shut them down. He'd sing for hours and hours straight, and all of a sudden we'd hear the microphone degrade. We'd get out a hair dryer and start drying up the tubes. It was quite a process."

Elson says that at the end of the recording, Perry wanted to buy the mics from Fantasy, but Fantasy refused.

The drum performance and recording are a big part of the power of the song. Steve Smith plays some cymbals in the beginning of the verse of "Open Arms," which opens with just Cain's piano and Perry's vocal. Smith's drums enter later during the first verse but he doesn't break out the big-gun drums until the second verse. That, of course, is a combination of the way Smith

"At the time, nobody built a windscreen, so we had a makeshift screen out of women's hose. These mics were so sensitive that you had to keep the moisture out as much as possible."

—Producer Kevin Elson

plays and some recording technique.

"It was a combination of two things: the EMT 250, the first digital reverb that we call the robot, and the close-room sound of it, and then tape delay on an EMT plate," Elson explains. "We actually used the tape machine delay to decay, so you hear the attack and then you hear the echo after. You almost hear a cannon when it happens because you're hearing the 'verb you built come later behind the beat. You hear the attack and you hear kinda the drum decay again later. There was so much room in the song that there's plenty of room to hear that. On that

track it's basically a guitar, piano, drums and bass. Later we did a quartet—we did many versions of mixes of no strings, yes strings, more strings, less strings. So the drums could be a big part of that song."

Elson is quick to add that Smith's sensibility on the drums was a big part of the sound. "Drummers play, but Steve almost plays musical notes," he says. "It's almost melody."

On the outside of the kick drum, they used a Neumann U 47, on the inside they used a beyerdynamic M 88; on the top of the snare an AKG



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414, with a Shure SM57 on the bottom; Sennheiser MD421s on the toms, an AKG 451 on the hi-hat, Neumann U 87s for room and overheads. On the piano they used a Neumann U 47 and an AKG 414.

"I believe Neal used the Roland synth guitar on that track," Elson recalls. "Neal always used his own effects." Elson said he believes Schon used a Sony C37, an AKG 414 and a Shure SM57.

Fantasy at the time had a Neve 8108 console, Studer A800 24-track tape machine and Ampex ATR 2-track.

Schon's father, Matt (who also provided arrangements on "Mother, Father"), wrote the charts for the strings, which Elson said was a simple quartet, triple overdub, with Neumann U 87s and AKG 414s to capture.

Despite Schon's distaste for ballads, "Open Arms" stayed at Number 2 for six weeks.

Elson says he knew immediately it was a hit.

"I knew in rehearsal," he says. "And moreso when it was finished, just like everyone else that heard it." ■



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CARLOS RODRIGUEZ-QUIROS

By Tom Kenny



Photo: Nina Rodríguez-Quiros

Carlos Rodríguez-Quiros, with his wife, soprano Gladys Rodríguez-Olleros, at the rear wall of San Juan Mix Suite, with ZR Acoustics treatment.

Carlos Rodríguez-Quiros is a renowned classical guitarist with an affinity for sound. From what he hears in his brain to his fingers on the strings, from the reflections and resonances in the hollow body of a guitar to the acoustic, musical energy filling a space, it's all one sound. When performing, he is able to adapt to the hall and the audience, and be content. He plays with orchestras, ensembles, solo, and with voice. He composes for film. But in his recording career, over the course of many albums in a variety of locations, he has never been completely satisfied with what he's heard on playback. So he built his own studio.

It seems such a typical story, and it is; artists build studios every day around the world. But Rodríguez-Quiros is not typical, not in the way he relates to sound in a space. He began designing guitars at age 12 under the direction of a luthier in San Juan, Puerto Rico, at the same time his proficiency was developing. Today he has a signature line. He is self-taught in acoustics, and when he set out to build San Juan Mix Suite into the garage/ground floor space of the townhouse he shares with his wife, soprano

Gladys Rodríguez-Olleros, he started exploring the relationship between the physics of designing a guitar body and the interaction of sound in a control room/studio.

"I spent hundreds of hours looking into how a room was built and tuned to tracking and mixing," says Rodríguez-Quiros, freely embracing what he calls his OCD in researching every detail. "When I found Hanson [Hsu, Delta H Design], it was the first time I heard something different. He said that he could take away the walls, take the room out of the equation. I did my research. It sounds crazy, too good to



The mix position, Pro Tools-based with Gordon mic pre's and Burl conversion, as seen from the tracking space at the rear of the room.

Photo: Nina Rodríguez-Quiros

be true, and everyone said it was impossible. But it's just what we do within a guitar, and it doesn't really matter the size of the room—my room is 10 feet by 23 feet. When we put up the panels, it sounded like HD."

But we're getting ahead of ourselves. Long before he started gutting and framing his downstairs residence, and long before he put up Package Number 6 of the ZR Acoustics wall treatments, Rodríguez-Quiros began concentrating on his front end in a previous incarnation of his studio. He bought a Gordon preamp, Burl conversion, an LA-2A and Pultec for mixing down, and opened up a relationship with noted microphone designer Klaus Heyne.

"I have a Brauner Klaus Heyne edition for the studio," Rodríguez says with obvious pride. "He made Klaus Heyne Version number 2 for me. It was a great experience to work with Klaus. He is a luthier of microphones, and he started out building instruments. The only difference when we talked was that he used technical terms and I used musical terms."

San Juan Mix Suite is up and running, though still a work in progress. The attention to detail is remarkable in a home-based studio, down to the tree personally selected for its density and used for the floor. At NAMM in January, Rodríguez-Quiros played a show with the fourth model in his guitar line, La Catedral, built for Manuel Adalid of Guitarras Esteve. He used a Royer mic and a set of movable panels developed by Hsu for separation. He liked the hybrid absorptive/diffuse gobo-like panels so much that he's bought a set to increase the flexibility of his own space.

"From the beginning, from my very first research, I simply wanted a room to record classical guitar where I can press Play and record myself," Rodríguez-Quiros says. "One space for tracking and mixing the type of music I do, guitar and vocals, where I don't have limits. It's small enough to be manageable for one or two people, or we can fit a quartet or drum kit. I wanted full versatility, a big open space with lots of light, near the ocean, where we can make music with no troubles. I wanted it to feel like I'm at home, not in a studio." ■

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'THE ART OF LISTENING'

By Tom Kenny



Composer/arranger/multi-instrumentalist Gustavo Santaolalla

Courtesy The Art of Listening

It is fitting that producer Andrew Scheps is featured prominently in the new music documentary, *The Art of Listening*, advocating the experiential benefits of listening to hi-res music and encouraging its distribution. A couple of years ago, Scheps delivered his touring presentation called “Lost in Translation” at Fantasy Studios in Berkeley, Calif., where he broke down the compression schemes in modern delivery formats.

Michael Coleman, a young Bay Area filmmaker, was in the audience and later conducted an interview with Scheps. Neither knew then that the interview would inspire what became, after a few twists and turns, *The Art of Listening*.

Coleman, an audio graduate of Ex'Pression College of Digital Arts in the early 2000s, spent a year interning with producer Jack Douglas before turning to filmmaking. He's always had an ear for sound while behind the camera, and has devoted much of his production work to taking viewers inside the creative process. A decade ago, he launched the popular site soundworkscollection.com, with an emphasis on audio post and music composition. In recent years, he's teamed up regularly with filmmaker Emmanuel Moran, and the two began conceiving of a project all about hi-res audio.

“We were at first interested in what hi-res actually means and do people care,” Coleman says. “Is there a way to get people to think about what they're listening to? To us it was no different than thinking about what you put in your body when you eat food. But when we went down that path, it somehow turned really neg-

ative and heavy-handed. We did a complete 180 and said that this needs to be inspiring.”

While still figuring out direction, the two went ahead with interviews in Los Angeles, New York and the Bay Area, capturing engineers, producers and composers. The first real interview after Scheps was Mark Weinstein, founder of Amoeba Records. Then Hans Zimmer, Steve Vai, Tim Westerberg and 10 or 12 others.

At some point along the way, they realized that “chasing the fidelity conversation,” as Coleman calls it, was a dead end. Convenience had won out for now. So they started thinking about listening, in the broadest sense of the term.

“We thought about listening as so many types of experiences,” Coleman says. “The bare minimum was simply giving music your time and attention, to show people that there is value in spending time with music. So much of a person's relationship to music is based on their habits, their household, how they were raised. We wanted to show that the fundamentals are that you love mu-

sic and you want to spend more time with it. As a listener, you're a part of the artist's community.”

At the same time they were changing direction, the filmmakers received financing from Sony Electronics, which meant two things: They could now explore an hour-long feature-length documentary, and they could shoot 4k with the Sony FS7.

Coleman and Moran hooked up with producer Sebastian Weinberg and set out to gather more interviews, finding a wonderful cast of characters, from luthiers and singer songwriters, to Dave Smith and David Chesky; from Gabriel Roth to Kamasi Washington; from Antonio Sanchez to Gustavo Santaolalla. It's the juxtaposition of big names and no-names, instrument makers and artists, that gives the film its power. All have a relationship to listening and to music, no matter their craft.

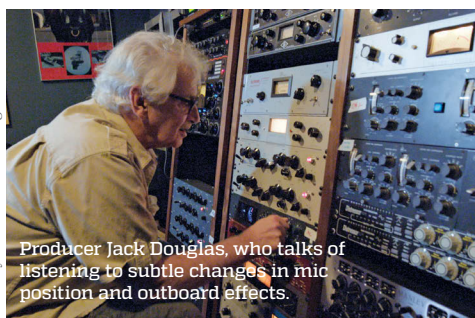
The film is scored beautifully and soothingly, like a slow wave over a big ocean, by Christopher Willits, a Bay Area composer and artist who also speaks eloquently in the film. It is also punctuated by live performances, many of them impromptu, all of them reinforcing the idea of listening. It opens at the famed Bluebird Café, with an intimate audience surrounding a band 360 degrees on the floor, which is about as close as you can get to a true music listening experience.

The Art of Listening was mixed in 5.1 at Skywalker Sound by sound designer/re-recording mixer Steve Boeddeker, whose list of credits includes *Bridge of Spies*, *Beasts of the Southern Wild* and *Pixels*, among countless others. Coleman wanted to work with him because he is a musician, too.

“It was mixing for feel, really,” Coleman explains. There are no real sound effects in the traditional sense, though he did play with bringing music a little bit off the front wall to the sides. We wanted it to be in 5.1 because it will eventually be playing festivals and VOD.”

The Art of Listening team held a premiere in March at SXSW, accompanied by Willits in live performance. The film has been submitted to festivals worldwide and plans are underway to hold screenings in select cities. If it's headed your way be sure to give it a listen.

For more, visit theartoflisteningfilm.com. ■



Producer Jack Douglas, who talks of listening to subtle changes in mic position and outboard effects.

Courtesy The Art of Listening



The film's composer, Christopher Willits, performing live.

Courtesy The Art of Listening

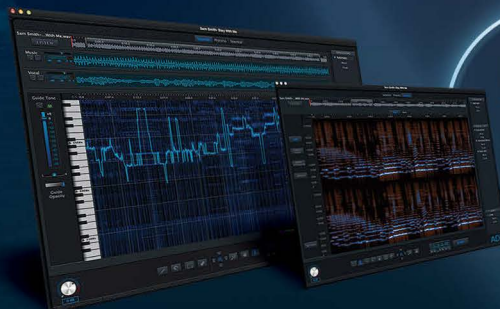
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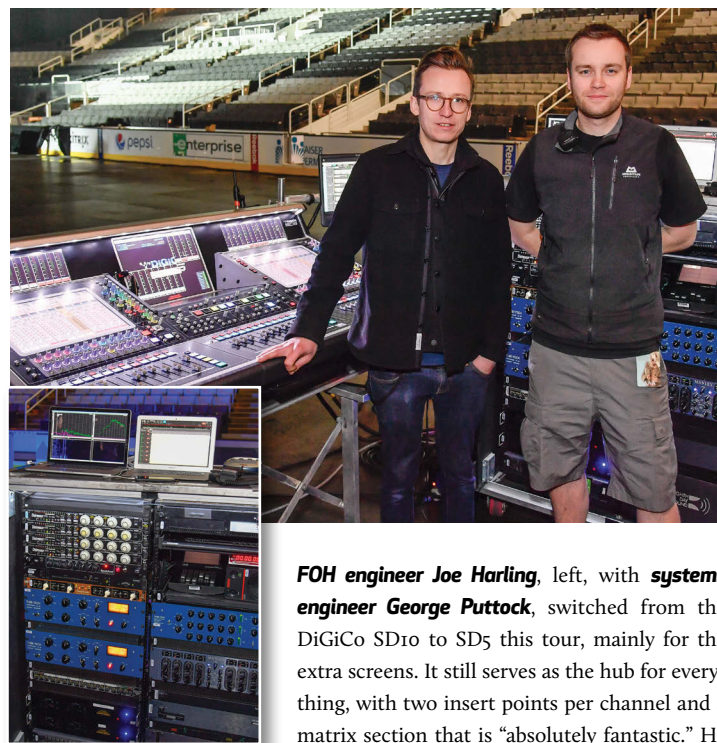
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ELLIE GOULDING



Mix caught Ellie Goulding's Delirium World Tour 2016 in mid-April at the SAP Center in San Jose, Calif. Production was provided by UK-based Adlib Audio; rig by d&b audiotechnik.



FOH engineer Joe Harling, left, with **systems engineer George Puttock**, switched from the DiGiCo SD10 to SD5 this tour, mainly for the extra screens. It still serves as the hub for everything, with two insert points per channel and a matrix section that is "absolutely fantastic." He takes 56 inputs from stage and runs four outputs

to the P.A. (left, right, subs, fills), with the band mix and vocals separate, meeting the L/R mix in the matrix. He uses lots of plug-ins.

"I run Waves MultiRack externally from the desk on a Mac Mini via a DiGiGrid MGB," Harling says, adding that he owns lots of Waves products, with particular favorites being H EQ, H Delay, C6, WNS, and the CL 1176 and LA2A models. "Most inputs and mixes hit Waves at some point, whether that be for level control, EQ, adding character, or all three! I also run some Soundtoys and Valhalla plug-ins on a laptop hosting Ableton via a second MGB. My main four reverbs come from a TC System 6000. We use MIDI Time Code to fire snapshots in the desk, which then fires snapshots in Waves and the TC reverb.

Harling's outboard rack (inset) includes four Distressors (kick group, snare 1 and 2 groups, and synth bass), a Kush Audio Clariphonic ("fabulous for bringing out the top end on the snares"), a SansAmp RBI for generating some harmonic content on the synth bass, and two TubeTech CL1Bs for the bass guitar and lead vocal. He adds a TubeTech multiband comp and a Manley Massive Passive EQ across the band mix, for a bit of mastering.

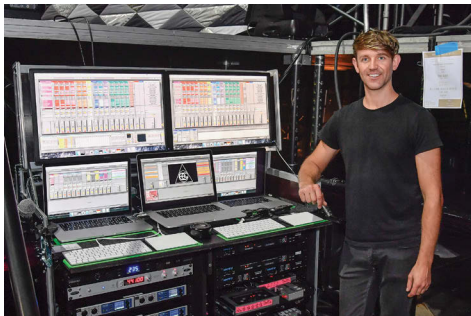
"In terms of the band mix, myself and MD Joe Clegg have worked hard to create space in arrangements that are pretty full-on," Harling says. "There is a lot of quite intense production on her albums, so the challenge is to try and maintain as much of that as possible, while leaving enough space for the vocals and the live acoustic instruments. The band are all fantastic sound designers, and we have bass, guitar, keyboard, backing track, and electronic drum sounds that are constantly changing."



Monitor engineer Michael Flaherty, right, with monitor tech Marc Peers, switched this year from a DiGiCo SDro to an SD7, primarily for the back-up that comes with dual-engine capability. He is around 72 input channels; outputs include 12 stereo IEM mixes (most of which have duplicate packs for techs and other

members of the tour), along with three sub mixes of d&b Q subs for drums, bass and keys. No plug-ins; all effects are from the console, except for two Bricasti M8s running AES into the console for Goulding's vocal and the drum effects.

Rack gear comprises two Sennheiser radio racks, the first for the vocal mics. "We have Ellie's main and spare on a Sennheiser EM3732 mic receiver, which is clocked externally from the monitor SD Rack and run AES into my board—but it stays analog for FOH," Flaherty explains. "The BGVs are using Sennheiser EM 2050 mic receivers with four e945 mic capsules on SKM200 handhelds. Also in the rack is a Sennheiser ASA3000 antenna splitter with three units of Fischer AL 161 rechargeable batteries. The second rack has 12 channels of Sennheiser EM 2050 IEM transmitters and two Sennheiser active transmitter combiners."

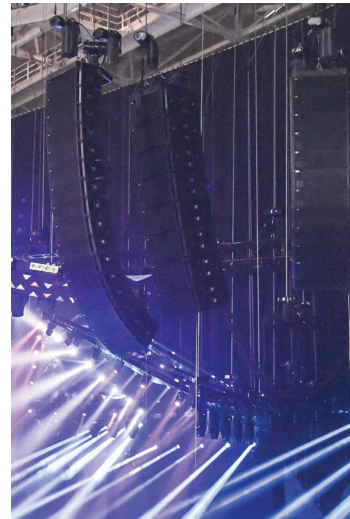


MIDI and Playback Tech Will Sanderson maintains a rig built around Ableton Live running on a mix of Apple Mac Pros and MacBook Pros, handling all keyboards, drum triggers, playback, auto-cue and timecode. It is entirely controlled by the musicians onstage via MIDI for flexibility in sound design.

"I'm using MOTU's Midi Express XT and Micro Express units, along with an iConnectivity iConnect MIDI2+, to handle all the MIDI coming from stage via Kenton LNDR Cat-5 MIDI line drivers,"

Sanderson says. "We have a large amount of MIDI traffic coming from stage, and while there have been some great developments in RTP MIDI and other network-based MIDI systems, this is a tried-and-tested approach that has proven to be very reliable.

"In terms of the audio output, I've been a little more progressive," he continues. "I'm using four RME MADIface XT interfaces controlled by the RME TotalMix software, an RME MADI Router, three DirectOut EXBOX.BLDS MADI switchers and the Ferrofisch A32 AD/DA MADI converter. That particular Ferrofisch A32 was the first one to arrive in the UK and it's an excellently thought out piece of kit. I like the extra flexibility offered by MADI—in this case, it's enabled more sophisticated channel routing that actually gives me up to four levels of redundancy and backup for our keyboard players. The audio quality is fantastic and I'm also adequately future-proofed should the show grow and require extra channels. I'm using the Antelope Audio Isochrone OCX clock to keep everything in sync and the Rosendahl MIF4 to monitor timecode, which is sent out to FOH, Lighting and Video departments. The band are very hands-on with the software side of this rig, so it was important to select hardware that would give them the quality, flexibility and reliability they require."

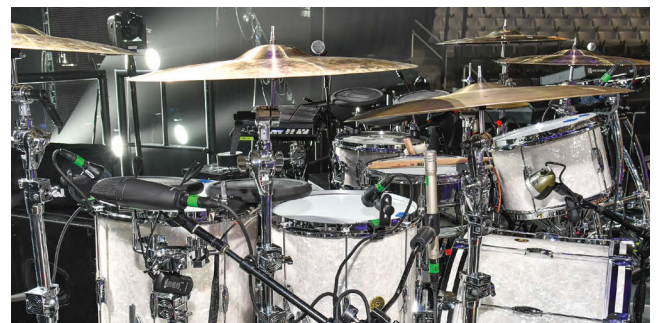


The P.A. is d&b J Series, with 20 J8s on the Main hang, a 16-deep J8/J12 hang on the sides, eight JSubs flown per side behind the Main hang, and a line of eight JSubs and eight JInfras on the floor. Front fills comprise 10 Y10Ps and everything is amplified with d&b's D8o Amplifiers. "There are no wedges on the stage, although we do have a sprinkling of d&b Q Subs/L-Acoustics SB18s for LF reinforcement," says Puttock, who has done several tours with Goulding. "System drive

is provided by Lake LM44s, which in my opinion is one of the best controllers money can buy."



"Ellie is currently using a Sennheiser SKM5200 handheld with a EM5245 mic capsule," says monitor engineer Flaherty. "This is a new product from Sennheiser, which we have been using since last summer and have been really impressed with the gain reduction from the spill of the drums and P.A., giving us more volume and control over the vocal. Ellie's drum toms she plays are miked with two Sennheiser e904s."



Drum kit mics include an Audix D6 and Shure Beta 91 on kick. Both snare drums have Beyers Dynamic 201s on top and bottom. For the tom rack and two floor toms, Sennheiser e904s. The hi-hats and ride cymbal are Shure SM81s while the overheads are Shure KSM32s. A new addition to the tour input list is the "trash mic, a Shure 520DX bullet mic, which sits just above the kick drum in between the rack and floor toms.

TRIBUTE TO 'RVA' LEGEND THOMPSON AT THE NATIONAL

On February 28, 2016, more than a dozen musicians came to The National in Richmond, Va., to salute The RVA's beloved troubadour Robbin Thompson, who passed away after a battle with cancer last fall. "Robbin Thompson's Real Fine Day" was a benefit for his favorite charities, the School of the Performing Arts in the Richmond Community and JAM Inc. The show at The National occurred during a \$150,000 sound upgrade of the former classic-era movie theater by AEG Live, which bought the venue in fall 2014.

"We've already spent \$60,000," says Carrol Miller, lead audio engineer for The National and other AEG properties in the region, including the NorVa, Norfolk, Va.; and Rams Head Live!, Baltimore. Upgrades include two new Avid VENUE SD48 consoles; five L-Acoustics dV-DOSC boxes in the center cluster, above the balcony; and four V-DOSCs each on the left and right of the stage; and two sets of L-Acoustics SB218 subs, three per side, at the front of the stage.

AEG will add to the array, with four more V-DOSC speakers, more amps, and the Dolby Lake Processor. "That's the next upgrade. We're hoping for approval shortly," says Miller, who also works with Backstage LLC, also of Richmond, and tours with The Pretty Reckless.

The upgrades have brought the sound and beauty of the venue more in sync. "The National, with its artwork, can be very inspiring," Miller says, "and the P.A. system is wonderful, due to the sound treatment that we've added to the walls, the proscenium, and the ceiling and dome. Some of the 20 4-foot



The Robbin Thompson Band, led by musical director Velpo Robertson, at The National on February 28, 2016

Photo: Skip Rowland Photography

by 8-foot sections of acoustic treatment aren't usually recognized."

Another console, a rackmount Behringer X32, is used for a percussion submix, says Jan Williams, Thompson's longtime soundman, of FCP Sound, Lancaster, Va.

"The National is a great venue, especially with the enhancements," Williams says. "It used to be that whenever fans were in the balcony, the bottom fell out of the sound. Since AEG took over, that's the main improvement."

"I think it's a wonderful room," adds Velpo Robertson, RTB's guitarist and the show's musical director. "It holds about 1,500 people, but it's surprisingly intimate. Acoustically, it's great as long as you don't get too loud. If that happens, you can't stay in the room."

"I feel the room is really magical," Miller says, "and when the artists walk in, our team makes it easy for them. I think The National is one of the best venues in America." —Mark R. Smith

JOE SATRIANI SURFING TO SHOCKWAVE TOUR

Guitarist extraordinaire Joe Satriani has followed up his 2015 release, *Shockwave Supernova*, his 15th solo album release since 1986, with a 30-year solo career retrospective tour in 2016. For his Surfing to Shockwave tour, Satriani assembled a powerful touring band comprising Mike Keneally, keyboards and guitar; Bryan Beller, bass; and Marco Minnemann, drums. The quartet lined up 48 performances in theaters and concert halls across North America from late February through late April. Each night a different venue, delivering high-energy sets to devoted fans of Satriani's inimitable instrumental rock.

"I love it—it's a great gig," says veteran front-of-house engineer Michael "Ace" Baker, who previously worked with Sammy Hagar, which led to a job mixing the band Chickenfoot's second tour, featuring Hagar and Satriani, and eventually to mixing Satriani. "I'm a guitar player myself. I'm in a room with hundreds of other guitar players."

Clair Global supported the tour with DiGiCo SD10 consoles for FOH and monitors (including wedges, side fills, and subs) and a Shure/Sennheiser microphone package. "We use P.A. du jour every day, so I never know exactly what I'm walking into," Baker says. "Some [systems] are wonderful; some are interesting and we figure out how to make it work. But the venues that we play are all chosen pretty well. Many of them are places that we've played before."

"When you're doing [guitar-driven] instrumental rock, you're looking

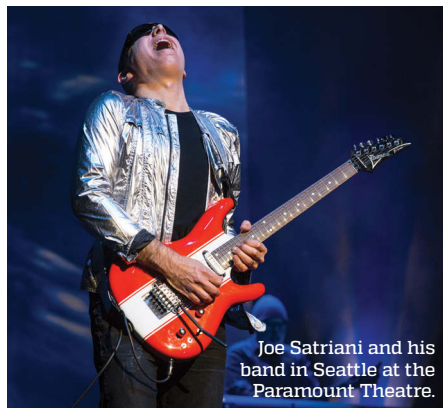


Photo: Todd Berkowitz

Joe Satriani and his band in Seattle at the Paramount Theatre.

to get a lot more frequencies out of the guitar because you have a lot more room to fill," Baker notes, saying that he uses a 57 on Satriani's amp "to make sure that everybody hears all the notes, [while] the Shure [KSM313/NE] ribbon mic gives me all the body and the warmth that I want to make it sound big and full. I try to make it sound for the audience like it sounds three feet away from the amplifier."

Baker also notes that Satriani and his band tend to draw large numbers of musicians to their shows, "people who are concerned with their hearing, something I always have to keep in the back of my head when I start getting really

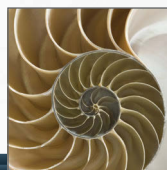
excited and want to crank it up. You really have to represent all four instruments—get them all in the mix, but keep that at a civil volume."

"Stage volume is always a concern," adds monitor engineer Mike Babcock, "especially with an artist that is a bit old school and still uses wedges. There are 12 Clair/Showco SRM wedges onstage. The sidefill on Joe's side is two R4s over two ML18s. Stage left just has a sub to complement the bass rig and another ML18 for a drum sub. Two of the guys are on JH Audio IEMs with Shure PSM 1000 transmitters."

"Ace and I have had plenty of talks about stage volume and what can be done to make his job better in terms of dealing with the stage volume," Babcock says. "I think we have found a good compromise to keep the band happy and allow Ace the acoustic breathing room he needs to make the band sound stellar for the audience every night." —Matt Gallagher



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JOSH GUDWIN AND JUSTIN BIEBER

Capturing the Vocal, Engineering With ‘Purpose’

BY LILY MOAYERI

For the many questionable statements and actions Justin Bieber has made over the course of his 22 years, he has solely carried the blame. When it comes to an album as credible as Bieber’s most recent release, *Purpose*, the maligned pop artist is given very little, if any, credit.

Released November 2015, *Purpose* is Bieber’s sixth million-plus selling album. *Purpose* broke Spotify records the week of its release with 205 million global streams. Thus far, the album has generated three Number One singles on *Billboard*’s The Hot 100 chart: “What Do You Mean,” “Love Yourself,” and “Sorry”—the first ones for Bieber in the U.S. And his first Grammy (Best Dance Recording) for “Where Are Ü Now,” his collaboration with Diplo and Skrillex as Jack Ü, is included on *Purpose (Deluxe)*.

Purpose, as with much pop today, is a Frankenstein construction that has close to 100 creative individuals involved in its design. If Bieber is the navigator of *Purpose*, then Josh Gudwin is the driver—who without direction would be at a standstill. Gudwin is one of the go-to guys in the pop business. Talented and experienced, he has expertise in numerous facets of producing music, from engineering and vocal production to composing and mixing. Gudwin’s roster of credits includes Rihanna, Jennifer Lopez, Bibi Bourelly, Rita Ora, Celine Dion, Jamie Foxx, Cher, Carly Rae Jepsen, Cody Simpson, Keyshia Cole, and Mary J. Blige, among others.

Gudwin’s relationship with Bieber began in 2010 when he was working with Kuk Harrell on *My Worlds Acoustic*. At Bieber’s request, Gudwin joined him on the road during the Believe tour to record *Believe Acoustic*. “It’s like playing a videogame,” says Gudwin of Bieber’s growth as an artist. “You go levels and levels up. You learn a lot about yourself. You learn what you like and don’t like in the studio. He has had a lot of experiences in both life and work. He put the time in. He’s cut hundreds of records since *Believe*.”

Gudwin and Bieber worked on *Purpose* for more than two years. When “Where Are Ü Now” garnered a positive reception, it gave Bieber the freedom to do music that was more for him than what was expected of him. To this end, Gudwin collects beats, chord progressions, guitar progressions, piano progressions, song ideas, from various producers that he knows Bieber will like. When Bieber is ready to write, he’ll come to Gudwin, give him an idea of what he’s feeling, and Gudwin will pull

Producer/engineer
Josh Gudwin



from what he has collected, finding precisely what matches Bieber’s idea.

“When I first started working with [Bieber], he would ask me for stuff and I would find it because he was asking,” says Gudwin from Los Angeles, sitting in Record Plant’s self-contained SSL3 Studio, where the majority of *Purpose* was recorded and where he spent approximately 100 days of 2015. He also spent some time at Henson Studios in L.A. and Jungle City in New York City. “That naturally progressed into me being proactive—learning what he liked, learning what he didn’t like, finding what he was looking for before being asked for it, and learning how to wait for the right time to play him something. That turned into different jobs: vocal engineering, composing, producing, writing, mixing and A&R.”

To get the best performance out of Bieber, Gudwin makes sure there are no extraneous individuals in the room, and certainly no one that Bieber doesn’t know personally. He makes sure that he leaves his own baggage and worries outside the door. And he doesn’t push. Bieber comes in to cut when he’s ready. The only times Gudwin asks for a redo on a vocal is when he is sounding nasally or sharp. Bieber himself has a very good idea of what he needs to do and has a good understanding of when he’s done his best and when he hasn’t. Most of the songs on *Purpose* have been recut up to three or four times.

Gudwin has a few microphones he likes to use with Bieber: Sony C-800G, Telefunken ELA M 251 and Neumann U 67, in particular. The three are bright microphones, appropriate for a pop performance. The Sony is the main microphone unless it’s making the vocal too sharp or too thin. It tends to accentuate the vocalist’s tone, Gudwin says, so when Bieber is sounding angelic, it works best. If he’s sounding nasally, the 251 is put up, and if he’s sounding thin, the 67 is used.

“If he’s sounding thin, pulling down some of the mids will make him sound thicker and losing some of the low-mids will make him sound bigger,” says Gudwin, whose vocal chain is whichever microphone into a

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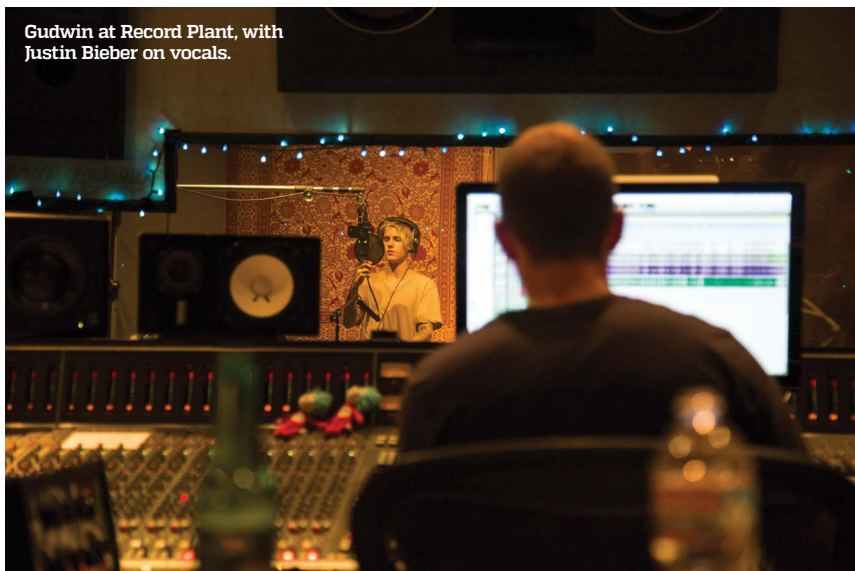
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Gudwin at Record Plant, with Justin Bieber on vocals.



Neve 1081 or 1073 preamp, then usually into the Tube-Tech CL 1B compressor and then a GML 8200 or 2032 EQ. The latter Gudwin has in place in case he doesn't have time to switch microphones, so he can fix what he needs to in the control room.

Says Gudwin, "I go over every line, every syllable, make sure the timing is right, make sure the pocket is right, make sure the notes aren't under or over. I work in Pro Tools using a lot of Universal Audio plug-ins like the LA-2A and 1176."

Gudwin takes maximum advantage of Pro Tools' capabilities to format the delays and effects on vocals. To create definition in the vocal, Gudwin picks certain words within a line or a whole line to pull up to the track he has dedicated to delay or the reverb burst with the mix knob turned all the way up. Here he treats it like a vocal track with its own EQ and compression, to have it sound different than the rest of the vocal, making it more easily digestible by the listener's brain. His actions create movement and tempo. If there is a gap in the vocal, instead of the hi-hat keeping the tempo, the vocal delay or reverb spell might do that.

"On a delay, if you have the mix all the way to wet, then the audio region will not play until it is delayed," Gudwin demonstrates on Pro Tools using the word "movie" from the song "I'll Show You." "I copy it up, drag it to my

quarter-note, clean it up, fade in and out, and that's the only word that gets played. Same with dedicated delay tracks, I'll put a reverb fully wet, and if I want it to sound like he sang that word in the Grand Canyon to get that feeling of emptiness, I can do the same with reverb effects. It's the same principal as what dub guys do to dub out certain words, just a different way to do it. When you're mixing on a console, you have to automate auxes on and off for whichever words you want thrown. It's a tedious process. In Pro Tools I have ultimate control."

Neve



...No Question

Gudwin starts a rough mix and edit as soon as he is done capturing the vocal—sometimes getting started while Bieber is still in the booth as the singer wants to hear the vocal as soon as he steps into the control room, making the decision on the spot if he wants to do more. If he's happy, Gudwin will start mixing the vocal into the song right there. When Bieber leaves the studio, Gudwin expects a call from him about 10 minutes later, asking if the mix is ready, and another call 10 minutes after that, until Gudwin sends him the rough mix. This practice inadvertently led to Gudwin being the principal mixer on *Purpose*. On the *Deluxe* version, Gudwin mixed four songs solo, seven tag teaming with Andrew Wuepper, one with Jaycen Joshua (who did another two on his own), Manny Marroquin did three, and Skrillex and Diplo did one.

"That initial rough mix sets the vibe for the feeling of the record all the way to the end," says Gudwin. "[Bieber] has listened to a song 150 times in the rough mix form. If we send that to a mixer and they change that feeling, to

JOSH GUDWIN'S MOBILE RIG

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chassis with HDX and (2) UAD cards
Apogee Symphony 16 I/O
(2) Neve 1073 preamp
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GML 2032 EQ

[Bieber] it's immediately wrong. My rough mix, I'm cleaning up and making space for things. I'm carving, I'm adding, I'm replacing the reverb with better reverb, I'm making sure nothing's too sharp or bulky. I'm trying to up the level of everything in the song sonically. I'm also making sure it translates to as many speakers as I can. I'm more of an emotional mixer than a technical one. I can make you feel a certain way listening to a song."

Gudwin's mixes are halfway to the master. When he sends material to the mastering engineering, he's offering them the choice of having his light master or no master. Much like with the mix, if the master comes back too different, Bieber is going to reject it as sounding wrong.

"Ultimately, [Bieber] is fully accountable on *Purpose*," says Gudwin, "This whole album, if there is a mistake on it, it will be his fault. And if there is success on it, it's because he put the time in on his own part to make it successful. We put a lot of love and care into *Purpose*. Me, I'm just trying to capture the vibe." ■



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3 Doors Down lead singer Brad Arnold (center) and producer/engineer Matt Wallace (seated, background)



PRODUCER MATT WALLACE WORKS WITH 3 DOORS DOWN ON *US AND THE NIGHT*

BY STEVE LA CERRA

Us and *The Night* (Republic Records) marks the sixth release of new material for 3 Doors Down. This time out the band was joined by producer/engineer Matt Wallace, who has had a long string of success over the past 25 years, producing and engineering acts including Maroon 5, Faith No More, O.A.R., Spin Doctors, Train and Blues Traveler, among many others.

Tracking took place at Blackbird Studios in Nashville, but before recording, he and the band addressed the songs. “Typical of 3DD and most bands that I work with, they had a big pile of songs,” Wallace begins. “My job as a producer is to help them find the better songs. We went through all of them, seeing if the chords supported what Brad [Arnold, lead vocalist] was trying to do melodically, and whether we had the right

key and the right tempo. Working on more songs than you know you’ll ultimately record can be a challenging, frustrating process but you have to go through it because you don’t always know which ones will come to the forefront. Sometimes you work on a song that you weren’t sure about, and it comes together.

“In fact, the song ‘In The Dark’ [the first single] came around at the last minute,” he continues. “Chet [Roberts, guitar] recorded the demo on his iPhone. He played it to us and we ran with it. They happened to be filming for another song, ‘The Broken,’ and captured some of the work on ‘In The Dark.’ There’s a short video [on YouTube] showing how that song came together and how we worked through it. That was one of those times when a last-minute idea becomes a song that you use for the record.

"It's very easy for anyone, myself included, to hear a nice polished demo and think it's a better song," Wallace continues. "To level the playing field we have to do away with that. Our starting point is, 'Do we have a good song on an acoustic guitar?' It always comes down to 'why choose this song over other songs?' And generally, with most singers, certainly with Brad, there's emotional or life moments that relate to those reasons. I want to make sure that everything we do supports Brad, creating a platform for him to do his thing. We can't step on his vocal."

Wallace and the band recorded drums and bass in one week at Blackbird and did another week of overdubs in one of the smaller rooms. "At the tracking sessions," Wallace explains, "we had everything going: drums, bass, guitars and, at times, keyboards, as well. Capturing that all together, with Chris [Henderson] and Chet on guitar, and Justin Biltonen on bass, really adds to the energy in the room and it comes forth when you hear the drums. I think it's an essential way to get the foundational aspects of the recording. You can pick and choose what you want to keep or overdub as needed, but invariably it makes the drummer—in this case Greg Upchurch—step up and do his best work."

"Then we went to the band's studio [Rivergate] in Hendersonville for overdubs and vocals. We recorded Brad's rough vocals at the tracking sessions, but weren't really focusing on vocals while tracking. It's better for me to have one-on-one time with a singer, talk about what the song means and what he is trying to get across. It's very difficult to pull that off when you are producing and engineering a tracking session."

Having said that, Wallace reveals his approach to recording Arnold's vocals: "I helped the band put together a secondary Pro Tools room at their studio so that Chet could work in that room on keyboard parts. Meanwhile, I was in the main room with Brad doing vocals. Most singers tend to feel better when they don't have a lot of people around, especially if you are trying to dig into some deeper emotional content."

"Generally we'd roll along with overdubs until Brad felt ready to sing a song or a group of songs," he explains. "I'd get the vocal room set and get the headphone mix ready. Sometimes he'd come in, sing a song, get warmed up and do two or three more. Other times his voice was not as strong as he wanted so we'd come back the next day. That part of the project was very much built around when Brad felt ready to sing, as vocalists are the most challenging of musicians to record because they have an instrument that's integral to their body, tied to them in a physical way. They have to feel healthy and well-rested. You try to cap-

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L to R: Matt Wallace, bassist Justin Biltonen and Brad Arnold

ture those moments when you can. If a singer has a cold or is just not up for it, they're simply not going to do their best work.

"I prefer that a vocalist sing the song a few times to get a performance, and Brad is that type of singer. Sometimes if it's a new song that's still kind of being written, we'd focus on the verses and see how it comes together, but generally I prefer long takes. Usually one take is really good and we can composite any moments that were superior from other takes."

Asked about the vocal recording chain, Wallace's answer is a bit surprising: "This is an interesting area where I might part ways with other engineers. I'm a big fan of good gear and have certainly owned my share of expensive vintage stuff. But I firmly believe that what you record is more important than how you record. When there's drums, voice or gui-

tar, 85 percent of the sound is coming from the musician, and we try to capture the remaining 15 percent. Brad is a great singer. We rented a Neve 1073 and a microphone—probably a Neumann U 47 or U 67, I'm not even sure to be honest—but it's really down to the singer. I've had great luck with people holding an SM58 in the control room."

When the recording process was finished, the sessions were sent to Chris Lord-Alge for mixing. "3DD has worked with Chris in the past and he just does such a great job that it made sense to get him on board. He nailed it as he usually does. He knows what he's doing," laughs Wallace.

The producer describes his experience on *Us* and *The Night* as "an absolute pleasure, like a dream job. I was honored to be invited along and help. It was one of those symbiotic relationships where everyone had a job that they did really well. Between the band, myself and Marshall Bastin, our assistant, we had a really good team."

"The guys in 3DD have a lot of heart and soul," he concludes. "They started The Better Life Foundation in 2003 and support charities like the Center for the Prevention of Child Abuse and Habitat for Humanity. They provided aid and assistance to the Gulf Coast region of Mississippi during Hurricane Katrina. They give away time, energy and money to people who need it. That's pretty impressive considering that they can do what they want with their money. They are trying to lead by example to make the world a better place instead of just complaining about it. It's refreshing." ■

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L-R: Dan Diaz, Scott Miller,
William Hunt

Photo: Tom Ito

THE HIT HOUSE

BY STEVE HARVEY

A MOTION PICTURE'S MUSIC SCORE IS RARELY, IF EVER, LICENSED FOR USE IN THE FILM'S TRAILER. INDEED, IT RARELY EVER WAS; MORE LIKELY IT WAS RECYCLED FROM OTHER FILMS. THOSE ENORMOUS, EPIC THEMES, POUNDING RHYTHMS AND LUSH, MELODIC UNDERSCORE THAT YOU HEAR DURING THE COMING ATTRACTIONS? YOU WON'T HEAR THEM IN THE FILM.

Over the past couple of decades, promoting a movie has become a specialized business. These days, film production companies employ trailer houses to put together promotional campaigns for cinema, television and the Internet. They, in turn, commission custom music from composers who are adept at crafting scores that are as much about selling theater tickets as they are about selling the emotion of a scene.

One such custom music shop is The Hit House, established 10 years ago by Sally House, the company's executive director, and her husband, creative director Scott Miller. With a background in advertising and branding in South Africa, House initially worked at ad agency Ogilvy & Mather after moving to Los Angeles, later transitioning to the client side as Kenwood USA's director of marketing, then VP of marketing for Clarion Corporation. Miller, an American born in England and raised in

South Africa, where he studied at Pretoria's Conservatoire of Music, relocated to L.A. to attend the Musicians Institute of Technology, where he was nominated as Outstanding Guitarist of the Year. A songwriter, composer, producer and multi-instrumentalist, he was named one of the institute's Most Outstanding Alumni in 2015.

The Hit House has become well known as a preeminent supplier of original music, not just for movie trailers, but also for TV advertising and videogame marketing campaigns. While the balance varies between those types of projects year-by-year, House reports, "This year, so far, it's been 70-30 trailers to commercials. Currently, we're very busy with trailers."

The Hit House is as likely to be called upon to produce a cover or remix as compose an original piece for a trailer. Their work can be heard in numerous campaigns for major motion pictures. The stark piano reworking of the memorable hook from the original *Ghostbusters* theme for the trailer advertising the upcoming movie reboot is theirs. For *Suicide Squad*, due in August, they enhanced Queen's "Bohemian Rhapsody" to better fit the trailer edit. For 2015's *Pan* trailer, they added live percussion, strings, brass, acoustic guitar, bass and synth to the existing vocal and children's choir on Christina Perri's "I Believe." Check out the trailer for *The Jungle Book* remake and pretty soon you'll be whistling "The Bare Necessities," which they reimagined and re-recorded.

"Trailers are good fun," Miller says. "They're still one of the last frontiers; they are pushing boundaries in every way they can. That's why we've become so busy with the custom stuff—people are imaging stuff that is outrageous but doesn't exist."

Business models have changed over recent years, not least in response to the changing economic climate. When the couple realized that clients were no longer attending sessions, they closed their facilities at the Raleigh Studios lot in Hollywood and set up shop at their home on a quiet cul-de-sac in Torrance, saving themselves a 90-minute commute at each end of the workday. Plans are under way for the house to be extended, to include a couple of studios. Meantime, Miller and composer William Hunt work out of two soundproofed studios in separate backyard cabins.

"There's an ocean breeze all the time. But on the worst days of summer I have to go and jump in the pool," admits Miller.

Hunt, whose first instrument is cello, was offered a full-time position after a three-month internship prior to completing his final semester at NYU. He lives within walking distance, as "I don't like driving," he says, while adding that he enjoys the relative isolation of his room. "I really, really benefit from just sitting and focusing for the whole day. I've never been in the pool. It's an ongoing joke."

"William is so diligent, I have to kick him out sometimes," says House. "Like, could you please go home now? It's eight o'clock."

The home-based facilities were also a response to another imperative, as Miller relates. "We had kids, and it was the best thing. It doesn't matter how busy we are, there's always dinner and there's always bedtime. We still end up working until midnight, but the kids don't realize that we're doing 14-hour days because we're always accessible to them."

A third composer on the team, Dan Diaz, operates out of his home just up the 405 freeway in Culver City. His work is highlighted in the trailer for *Elvis & Nixon*, a funk instrumental with an early-1970s vibe that kicks in around the 0:40 mark.

Rounding out The Hit House squad are Tom Ito, who looks after social media—and they are very active on every major platform—and Chad Hughes, a three-time Emmy Award-nominated sound designer who works out of a studio in his house near Temecula, in nearby Riverside County. Hughes, the first to join the husband-and-wife team, focuses on sound editorial and spends much of his time working on *Gotham*, the Batman origin series airing on Fox on Mondays, and *Turn*, AMC's Revolutionary War spy drama.

Hughes' home setup is modest, he says: a JBL LSR4328P monitor system, Digidesign 003 controller and arrays of hard drives. "I work exclusively with Mac products," he says. "I'm on Pro Tools and have been for 12 years."

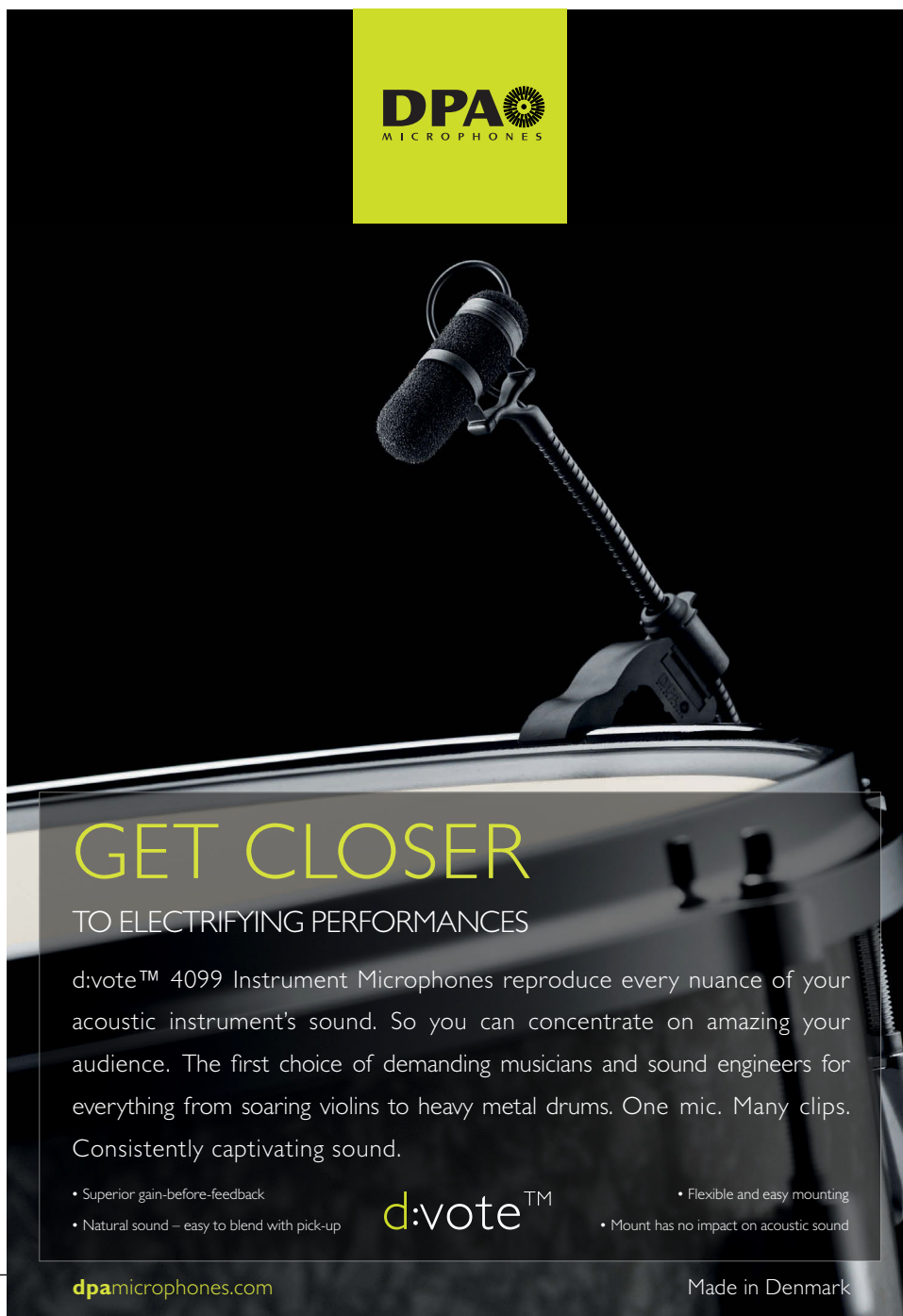
His comment reveals a schism at The Hit House. "Dan and Chad are on Pro Tools, Scott and William are on Logic," House confides.

"These days it's so easy to go between the two," counters Diaz. "I say if you can't make it happen in any of them at this point then you're doing something wrong, because they're all so good."

Communicating via Instant Messenger and exchanging files in the cloud, team members often collaborate, especially on time-sensitive projects, each working on a specific part before Miller combines them for mastering. "All our clients, all the music supervisors, use IM," explains House.

Miller and Hunt occasionally swap rooms to apply a different perspective to each other's sessions. "We'll switch back and say, I would have never thought of doing that. It makes it really fun," says Hunt.

Soundminer audio file management provides Hughes with access to a vast collection of sound effects and Foley recordings, amassed over years of editorial work in features as well as episodic TV. "I've been using Soundminer exclusively since 2003. It can process VSTs within it now, and save out those settings," says Hughes. It's also useful as a converter, as support for SD2 files wanes: "Soundminer allows me to convert all



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At the end of each season Hughes will master out unique sounds to his library. "I did a series called *Nikita*," he explains. "I've got hundreds of things that I mastered from that, from computers to vehicle sweeteners to weaponry. I recently sent Scott some guns for a project we were working on. I had just done an episode of *Gotham* and had some unique shotguns that I had designed."

Deadlines tend to dictate the direction in which sound effects flow. "Commercial work is so targeted and so specific. I'm usually using my material from features and television in those things to speed me up," Hughes explains. That said, "We did a Lexus spot where this huge metal shipping container came crashing down, a great metallic, booming, larger-than-life thing that I ended up mastering out."

Hughes always has an ear cocked for unique environments, it transpires. "Chad will text me telling me that he's in the parking lot at Warner Bros. because he heard a sound that would be really good for a hit," says House.

"We were in the basement and it had this just fantastic natural 'verb,'" Hughes recalls. "My assistant and I spent a couple of days down there and did some recordings, slamming down tool boxes, all kinds of different car doors. We put five mics around the garage; it was awesome. You can't fake that with processing."

That said, one current favorite plug-in is AudioSuite's SciFi. On a recent *Gotham* episode, Hughes says, "We're in the Batcave, and Bruce Wayne's com-

puter is really old. It's hard to make beeps different, so I used SciFi to reprocess a bunch of different beeps to come up with new, distinctive-sounding tones."

Another favored software tool is Native Instruments' RC 48 convolution reverb, which was modeled by Softube. "There is a great setting in there called Reverb Tail. It will take any sound and give it a 40-second-long decay. I used that on all the hits in 'Layer One,' where we used a tail," Hughes says.

As House helpfully explains, last year The Hit House released its first collection of whooshes, crashes, booms and bangs, including Hughes' field recordings, entitled *Framework*, specifically aimed at trailer editors. "We did 'Layer One,' and it's been pretty successful," she says. "We had some sound design in trailers for *Bridge of Spies* and *Ben Hur*, which is upcoming. We're doing 'Layer Two' now. That's going to come out next month and we'll do 'Layer Three' before the end of the year."

This may be the year of the trailer, but diverse other projects have also come through The Hit House. "We did a title sequence for a CNN show about real life spies, *Declassified*. That's supposed to be out in a few months," House reports. "We're also working with NPR to do a reimagining of the *All Things Considered* theme. That's going to be really cool."

And, not to be forgotten, as it's roughly 30 percent of the business at this point, recent Hit House commercial projects have included spots for Falcon Tires, an MLB sponsor, and music—composed by Diaz—for a Toyota sales event. Over the years they have worked on commercials for some heavy hitters: HBO, Google, Netflix, Sony PlayStation, Ubisoft, Yoplait, Porsche, Lexus, and on and on. ■

Continued from p.20

A big part of Benevento's drum sound came from his friend Kenny Siegal, who owns Old Soul Studios in Catskill, N.Y. The first day Siegal came over, he brought an Altec 1567a tube mixer. "We ran three drum tracks through it so it came out one channel...it was the best drum sound I've ever gotten in my studio," Benevento says. "I immediately went online and got one for myself. All of the drums went into the Altec. With the demo tracks for all these songs, there was something off. When Kenny brought that summing mixer over, it was a real eye-opening moment."

Benevento used a Coles 4038 as the overhead on the drums, an SM7 on the snare, and an EV RE20 on the bass drum. Those went into the summing mixer, and then into the Digi 002 (heavily modded by the guys at Black Lion Audio) and then through some Tascam 388 EQs. He played the bass and drum parts in the studio by himself to lay down ideas, then invited friends Dave Dreiwitz (bassist for Ween) and Andy Borger (drummer, Tom Waits and Norah Jones) to the studio to re-record his parts.

"I probably re-recorded this song three or four times. I really wanted to get that drum sound right—a very direct and very clean sound, really saturated. Almost like something you can bite into. I messed with it a lot because I really wanted that dry, pop-y sound."

Benevento consolidates his tracks during recording, bouncing upwards of 24 tracks down to four or five stems, then to a tape machine. "I normally use a low amount of tracks for the drums anyway, maybe one, two or three tracks, and I'll bounce them down to one track on the tape machine as well, bounce down all the vocals to one track. I'll put all of the consolidated files into the tape machine, and then I'll show up to the mixing studio with only four to eight tracks at most for the record." The final tracks were mixed at Applehead Recording, with Applehead engineer/co-owner Chris Bittner.—Lori Kennedy

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MICROPHONES FOR INSTRUMENT RECORDING

BY STROTHER BULLINS

Microphones for instrument recording are often quite personalized choices, yet there are some brands, makes and models that always work well to capture the sound of a piano; acoustic guitar and other stringed instruments; drums, percussion, cymbals and overheads; and woodwinds and brass of many types.

To list a few obvious choices, you can't go wrong with any "U" mic from Neumann when it comes to condenser and tube microphones; Electro-Voice RE20, Sennheiser MD 421 and Shure SM57/SM58 or Beta Series dynamic microphones; and AKG's C414 multipattern condenser. These are generally considered superb instrument microphones and good ingredients in any flavorful microphone cabinet. In other words, hand me a Neumann U87 or two, along with a couple of SM57/58s, and I can be happy.

Here we share other transducers that excel on a number of specific instruments in the studio. Much of this information is gleaned from engineering friends and colleagues, in alphabetical order by manufacturer. Some are mainly new and exciting, while a few are simply my personal favorites.



AEA NUVON22

Engineers and Pro Audio Review collaborators Russ Long and Rich Tozzoli have evaluated and loved the AEA N22, a phantom-powered ribbon microphone well suited for instrument applications due to its slight upper midrange emphasis and trim bottom end, helping especially stringed instruments project through a thick mix. From drum room to specific instruments calling for a ribbon microphone, the AEA is a modern ribbon that exists for evergreen reasons. That

said, most every AEA owner I've known hasn't stopped with just one AEA microphone.



AKG C314

New from AKG is the C314 dual-diaphragm condenser microphone, birthed via C414 DNA. It features a dual-diaphragm capsule with four selectable polar patterns; each of the diaphragms is matched with the intention of creating optimal polar pattern accuracy. The mic also has the C414 microphone's XLS gold-plated membrane, and an overload LED Detection Display, which indicates overly high sound pressure levels.



AKG D12 VR

Way back in 1953, AKG produced its first dynamic microphone, the D12, with a notable low-end emphasis making it appealing on drums, bass guitar and various other instruments. It was followed by a series of offspring such as the high-SPL handling D112, and most recently, the D12VR. The latter offers four tonal options and uses phantom power uniquely.

Rob Tavaglione, in his review of the D12VR, explained its settings as such: "First it can be used as a straight dynamic mic, capable of high SPL handling and hot output. However, when 48V phantom power is applied, it drops the output by 10 dB and applies an active EQ circuit with three different settings. Mode 1 (green LED) has a bottom end boost and scooped mids; Mode 2 (red LED) has scooped mids only; and Mode 3 (blue LED) adds a high-frequency boost centered at 6 kHz to the bottom boost and scooped mids." As such, the D12 VR could be the most versatile "kick drum mic" on the market today.



AUDIO-TECHNICA AT5045

Audio-Technica's hand-built AT5045 is a "stick-design," large-diaphragm electret side-address condenser instrument microphone with a cardioid polar pattern. Available separately or as stereo pairs (AT5045P), the mics feature fast transient response, low noise and the ability to handle high sound pressure levels (149 dB SPL). The AT5045 employs a large, rectangular element, created with the intent to improve transient response and increase response bandwidth. It was designed for use primarily as an instrument microphone on overheads, percussion, acoustic guitar, strings and other acoustic instruments in professional studio applications.



AUDIO-TECHNICA ATM230

Newly built for drum and percussion capture, A-T's ATM230 hypercardioid dynamic instrument microphone features a proprietary high-SPL handling capsule, and is best for tom, snare and other percussion instrument applications. Other features include a rare earth magnet (reportedly for improved output and transient response), low-profile design for easier placement, and an all-metal build. Accessories in the ATM230 package include the AT8665 drum mount and a soft protective pouch. The mic is available individually or in the ATM230PK pack of three.

AUDIX I5

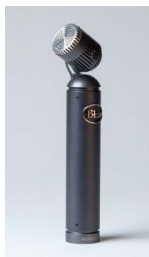
Over a span of several years working with Rob Tavaglione, we coordinated nearly a dozen



subjective “real world” multi-product shootouts, which we called “session trials,” one being focused on ribbon microphones.

This time working with Tavaglione, plus Lynn Fuston and Frank Wells, we auditioned a

half-dozen dynamic instrument microphones, one being the ubiquitous SM57 and another being the Audix i5. This dark horse from Audix has turned out to be one of my favorite dynamic mics. Best of all, it's super affordable and works well in the studio and live on most every source. “Though very different-sounding, both the Shure SM57 and Audix i5 received many top votes,” tells Tavaglione of our collective findings. “While we really liked the straight-ahead ‘mids-up’ clarity of the SM57 on snare, bass guitar, and guitar...we enjoyed the i5 on snare and kick, too; its bigger bottom and carved mids made for less need to EQ.”



BLUE HUMMINGBIRD

This small-diaphragm cardioid condenser from Blue, borne from the company's well-known Bottle B1 capsule, features a most-handy and unique pivoting capsule segment, allowing for 180 degrees

of detailed adjustment. From drum overheads to acoustic guitar to swapping with traditionally dynamic mic-captured toms, the Hummingbird sounds great on instruments in general. That, and the added convenience and accuracy of using pivoting capsules, gives the Hummingbird the edge in many recording situations for discriminating recordists at all levels.



CASCADE FAT HEAD II

It's been years since Russ Long introduced me to the Cascade brand, offering affordable but quite impressive ribbon microphones with many custom options. According to Cascade, manufacturing costs

are reduced via imported components, yet all products are designed, assembled and tuned

the microphones in the United States. The Fat Head II operates as an active or passive ribbon microphone at the flick of a switch, allowing more flexibility. Best of all? The mic is available for \$399 street.



DPA D:VOTE 4099

The 4099 microphone is a lightweight, miniature supercardioid condenser truly designed for instrument usage with a functional range of instrument-specific mounts available; comprehensive stand mounts are available, too. As such, the d:vote 4099 range is among the most flexible instrument mic range available in the industry. True to the source, the d:vote 4099's sound is simply accurate and expansive. The 4099 is designed with either of two different sensitivities; normal for the guitar, sax, and violin versions, which handle 142 dB before clipping, and a high-SPL version for trumpet, which handles 152 dB before clipping.



EARTHWORKS PIANOMIC

An acoustic piano can often be difficult to capture due to a number of factors: sonic characteristics of the piano itself, the acoustic environment, and the inevitable bleed of surrounding instruments. Often, it may be desirable to have the lid down, or to at least have the option. The PianoMic, a stereo omnidirectional rig featuring small-diaphragm Earthworks condensers, is a de facto “system” that goes a long way in simplifying the process of capturing piano.

In covering task-specific mic selection, microphone shootout guru Lynn Fuston described using the PianoMic as follows: “For acoustic grand piano, one supremely easy option is the Earthworks PianoMic System, which is a single unit that attaches inside the piano,

right above the bridge, featuring two mics on a single bar. In addition to sounding good, it is virtually invisible and can be used with the lid up or down. I have used AKG 414s for years on acoustic piano and DPA 4041s are favorites as well, either as a spaced pair or on a stereo bar. [Those mics] both require the lid up.”



ELECTRO-VOICE ND SERIES

E-V's new ND Series instrument mics include three dynamic models and one small-diaphragm condenser. The ND44 is a lightweight clip-on dynamic mic that is intended for tom-tom and snare drums. The mounting clip provides placement on drum rims, while a compact

form factor and low-profile angling head allow for unobtrusive placement in other applications. It can also be deployed on guitar cabinets, stand-mounted or hung directly over the cabinet. The larger ND46 dynamic mic is designed for drums and general instrument miking, with a locking pivot mechanism for positioning.

A small-diaphragm condenser, the ND66's filters, pads and locking pivoting head reportedly make it a great choice on drum overheads, hi-hats, close-miked drums, acoustic guitar, piano, etc. Completing the ND Series is the ND68 dynamic, intended for kick drum or on other bass instruments.



ELECTRO-VOICE RE320

Electro-Voice's venerable RE20 design has evolved and birthed the RE320, a high-SPL handling and relatively frequency-flat transducer. While it doesn't have the highpass filter of its RE20 and RE27 ancestors, it does provide a unique selectable EQ filter voiced for kick drum miking, adding low-midrange frequency scoop. In direct comparison to the industry's most popular dynamic microphones regularly used on instruments such as guitar cabinets, drums etc., the RE320 offers slightly emphasized top-end definition, the full bottom you'd expect, and more. As Tavaglione reported in

using the RE320 anywhere between kick drum to major-market radio DJ vocal, the RE320 provides “a little more bottom than a RE20, with some scooping at 300 to 800 Hz and nearly the same top end.”



MOJAVE MA-100

A favorite of many engineers, the Mojave Audio MA-100 is a small-diaphragm, vacuum tube condenser microphone with interchangeable cardioid and omnidirectional capsules. I first became aware of it following its full evaluation from Russ Long, who was already a fan of Mojave for obvious reasons: David Royer and company make truly great microphones.

From acoustic guitar to toms to piano, the MA-100 offers a certain sonic signature, as one would expect from a tube condenser. As Long describes of his MA-100 use on acoustic guitar: “An AKG C-28 (small diaphragm tube) has long been on the top of my list of favorite acoustic guitar mics, yet I miked up a Taylor 514-CE with the MA-100 and was blown away. The sound was amazing; it had everything good that the C-28 had, except it was quieter and had more top-end ‘sparkle.’”



ROYER R-121

Like Tavaglione’s previous session trial on dynamic microphones that featured a “control” product (the Shure SM57), this trial needed one, too; it was the Royer R-121. I wasn’t surprised when it emerged in this trial as the front-runner, too. As Tavaglione described his results, “The top pick overall was the R-121, which isn’t very flashy or fancy.

It was the most consistent, handling transients with incredible grace, delivering deep and extended lows, and offering the most honesty in the top end across the various sources.” Stacked up against an impressive bunch of world-class ribbons, the R-121 will never disappoint. For those desiring an active ribbon, you can’t go wrong with a Royer R-122, either.

SE ELECTRONICS RNR1

Designed by Rupert Neve and Siwei Zou of sE Electronics, the RNR1 active ribbon mic was also a contender in the ribbon session trial; since its debut, it has become a favorite ribbon to many of its users. Tavaglione’s findings are in line with what I’ve heard from other users; its high-end detail makes ribbon microphone use even more flexible and competitive against condenser choices.

“The SE Electronics RNR1 almost stole the num-



ber one position [from Royer] with its superlative performance on electric guitar and vocals, plus the many benefits of active electronics,” says Tavaglione. “If one considers the high-end detail, transient handling and high output found in the RNR1 (and the use of those qualities in classical recording, bluegrass, and/or largely acoustic recording as well as Foley work), then the RNR1 would have likely been my top pick with more divergent testing.” ■

Strother Bullins is Technology Editor for NewBay Media's AV/Pro Audio Group.

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NEUTRIK

MIX REGIONAL: NASHVILLE

WELCOME TO 1979 ADDS ELECTROPLATING FACILITY



Chris and Yoli Mara in front of the electroplating machines for Welcome to 1979 Industries.

After cutting lacquers for three years, Welcome to 1979 studio owner Chris Mara decided to expand the recording studio and vinyl mastering facility to include its natural, logical next step: the addition of an electroplating facility.

According to Mara, the 4,000-square-foot facility is the first new construction of its kind in 40 years. It's also the second facility not owned by a record-pressing plant, and the only one with on-site lacquer cutting. This addition is now part of the Welcome to 1979 Industries family, encompassing 10,000 square feet for the recording studio, vinyl mastering, and now electroplating. "It's always been crucial that lacquers get to the electroplating stage as quickly as possible to retain quality and avoid issues borne from dust, et cetera," Mara says. "This will allow us to cut a lacquer and minutes later have it into the electroplating stage."

Meanwhile, the recording studio received some upgrades: Mara added a matched pair of Flea 49s, recapped the audio electronics and relapped the heads of its Mara MCI 2-inch 24-track, and added 20 API mic pre's to its MCI 428 console. The original mic pre's are still on each channel, allowing the engineer to switch between the MCI and API instantaneously.

The vinyl mastering facility has been busy, as well: Recently, they cut the vinyl masters for the following projects: Wynonna Judd, *Wynonna & The Big Noise*; Bonnie Raitt, *Dig Deep*; Bela Fleck & Abigail Washburn, *Banjo Banjo*; and Luther Dickinson, *Blues & Ballads*.

In recording session news, Pam Tillis worked with engineer Ed Seay and producer Jimmy Ritchie (a special session because studio owner/engineer Mara was the assistant on Tillis' 1998 album, *Every Time*); Elle Macho worked with engineer Ryan Hewitt; Frank Foster worked with engineer Mara; Aberdeen Green worked with producer/engineer duo Paul Worley and Nick Worley; The New Mastersounds worked with engineer Mara; and Anastasia worked with engineer/producer F. Reid Shippen. —Lori Kennedy

The Tracking Room



The Tracking Room's spacious control room is anchored by an 80-input SSL 9000J analog console. The view between the Hidley-Kinoshita main monitors is into Iso 4 across the main recording hall.

Built in the mid-'90s to fill what was then a void of large tracking spaces on famed Music Row, The Tracking Room remains the largest recording space in Nashville. The stand-alone, 6,500 square-foot, single-studio facility was designed by renowned acoustician Tom Hidley, with a no-compromise construction mandate to provide the ultimate in control-room acoustics combined with flexible and expansive acoustic spaces. A recent update of infrastructure and equipment, including additions to the inventory of gear and software options, ensures the facility's position on the top tier of studios worldwide.

The Tracking Room is owned and managed as part of the Morris family of entertainment enterprises, renowned for its sound, lighting and integration prowess and led by industry veteran David Haskell. "We are proud to maintain and build upon the heritage of The Tracking Room," says Haskell. "This unique space, our clients and the music being recorded here deserve nothing less than the best, and that's just what the spaces, the design, the gear and our staff deliver."

The Tracking Room's main studio room spans some 70 feet of open floor space, 25 to 40 feet in width. One hundred feet along the studio space are divided into five generous isolation rooms. These spaces include: the Stone Room (slate floors, rock walls and a sloped hard plaster ceiling—highly reverberant and often used for percussion); an iso conceived for electric guitars with a walk-in amp locker designed to provide natural compression; two large general-purpose isos with bass relief traps, one wood wall (that can be damped with a curtain) and one soft wall; and the Yamaha C7-equipped piano room—all hardwood, tuned for a natural, piano-friendly tone and also featuring curtains for damping. Room-within-a-room construction was used throughout, with floating concrete floors (each iso a separate pour, with two isolated pours in the main hall). The result is a remarkably quiet recording environment with numerous permutations for achieving unique sonic signatures.

The mic locker is amply equipped with a range of classic and contemporary microphones. Equally appealing to visiting engineers is the broad array of mic preamps and outboard processing gear, again ranging from classic to contemporary. An 80-input SSL 9000J Super-Analogue console anchors the control room. An LCR configuration of Hidley/Kinoshita monitors with a stunning piano black finish adorn the front wall, with an independent earth foundation. Surround production is supported with Dynaudio rear monitors. An array of near-field monitor options are also available. —Frank Wells

The Rukkus Room Keeps Analog Alive



Jamie Tate at Rukkus Room

Jamie Tate, owner/engineer of The Rukkus Room, started his audio career in the mid-'90s, when he wired a studio and wound up being that studio's house engineer. Tate had built a solid reputation for himself over the course of seven years there. But that studio's owner, Jerry Abbott, decided to close the facility to spend more time with his family after his son, Dimebag Darrell (guitarist/songwriter for Pantera), was tragically killed onstage.

After the studio closed, Tate needed to find a new place to work. "I had attended a session with a friend to see Metallica's drummer Lars Ulrich record a few months earlier at the building that eventually became The Rukkus Room," Tate says. "I was

impressed by the building, and I decided that it was where I wanted to house my recording business. I truly love this studio. It's one of the reasons I'm doing the best work of my career." The studio had been operating continuously since 1981; Tate bought the space in 2004, and The Rukkus Room was born.

The studio was in pristine condition for recording when Tate acquired it, as it had been expertly designed to mic/electronics guru Gene Lawson's specifications. "The roof alone is three feet of poured concrete!" Tate exclaims. "When we have tornado warnings, people come from all around town to wait it out with us because it's like a bunker."

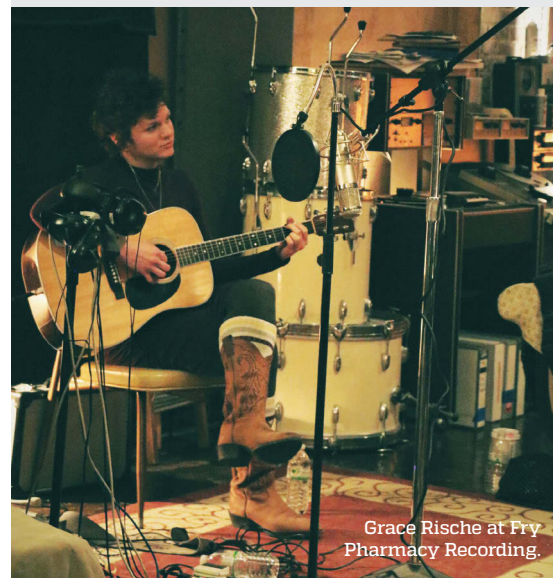
The Rukkus Room is 8,000 square feet, with three control rooms: Studio A is for tracking and mixing, and consists of a large live room, piano room and five isolation booths; Studio B is for recording vocals and overdubbing; and Studio C is a newly constructed room designed for building and mixing tracks.

Pro Tools is used in all of the studios, and RADARs are available. In Studio A, Tate has the Otari Concept Elite 96 console; Studio B houses an Avid D-Command expanded console; and Studio C has the Icon D-Control 32. There are Genelec 8050s in all rooms (plus various alternate monitors). Tate says there are plenty of great vintage analog compressors from which to choose.

"We're not just Pro Tools technicians," Tate says. "We're a world-class team of engineers and producers. I do the best headphone mixes you'll ever hear, topped only by the sound of the finished product. Everything that comes out of my studio, no matter who the artist is or what their budget is, sounds like a major-record-label-quality record."

Currently, Tate is engineering a remix/deluxe edition reissue project involving Emmylou Harris, George Jones and Johnny Cash. —Lori Kennedy

NEW OLD DIGS FOR FRY PHARMACY RECORDING



Grace Rische at Fry Pharmacy Recording.

Photo: Kaley Fluke

Fry Pharmacy Recording has moved into a "new old" space—one that is significantly larger than its previous incarnation. According to owner Scott McEwen, the old space was a control/tracking all-in-one area. "That style was cool for little while, but for the last few years, I've been realizing the negative aspects of recording in a one-room studio," he says.

The new Fry Pharmacy has a separate control room, larger tracking area, and some options for isolation. "The sound is in the air between the musicians, and therefore I track 90 percent of every record live," McEwen says. The studio location, in East Nashville, is within walking distance, of restaurants, coffee shops and bars with live music.

Recently, McEwen has been engineering a Nicole Atkins album, and Jim Sclavunos from Nick Cave & The Bad Seeds and Tom Blankenship from My Morning Jacket have been tracking with Atkins, as well. Talented sisters Lillie Mae (from Jack White's band), Grace and Scarlett Rische are currently recording at Fry Pharmacy.

McEwen is an analog-centric engineer who records on an Ampex MM1200, 2-inch 16-track and "thanks the recording gods" every time he listens to the EQ on his vintage Sphere console (which was custom-made for the Grand Ole Opry back in the 1970s). —Lori Kennedy

Mojave



MA-1000 SIGNATURE SERIES

"Thanks for letting me test out the new microphone - it was spectacular. When expectations are so high for a product you always hope for the best and Mojave delivered!"

Mike Clink

(Guns N' Roses, Metallica, Megadeth, Mötley Crüe)

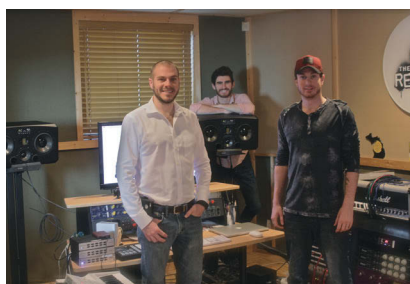
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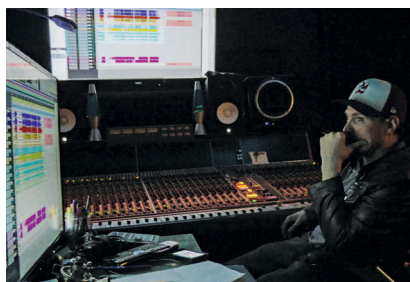
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SESSIONS: NASHVILLE



Pictured with the new ADAM S3X-H monitors, with (L to R) Adam Sheppard (ADAM regional sales manager), Collin Pastore (The Record Shop producer/engineer), and engineer Sean Giovanni.



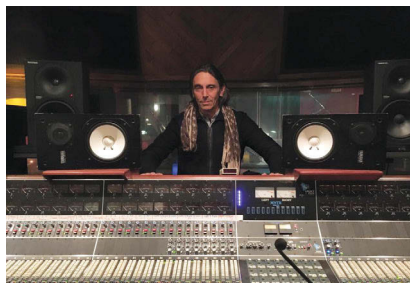
The Record Shop's Giovanni

THE RECORD SHOP

The studio recently switched over to ADAM Audio S3X-H monitors in its A room...Big & Rich worked on the single "Loving Lately" featuring Tim McGraw, with Sean Giovanni engineering and Big & Rich self-producing at Last Dollar Studio...The *Country Fried Mix* syndicated country mix show worked on material with DJ Sinister and Charlie Pennachio producing and Giovanni engineering...*Muddy Magnolias Live Recording* took place at The Basement East venue, with Giovanni producing and John Constable engineering... Clint Black and Big & Rich worked on the album *On Purpose*, with James Stroud producing and Giovanni engineering at Last Dollar Studio...AC Thomas worked on his debut album, with Giovanni producing and engineering at The Record Shop and Sony Tree...Rick Monroe worked on the single "Here's to Us," with Giovanni engineering and producing...Dylan McDonald worked on a live recording at Mercy Lounge, with Make It Pop producing and Giovanni engineering.



St Paul & The Broken Bones gang in Sound Emporium's A room.

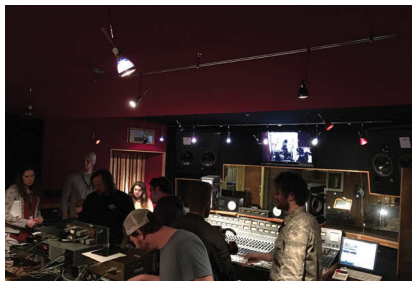


Jeff Ross in B room at Sound Emporium

SOUND EMPORIUM

Jacob & Fanny were in Studio A with producer Dave Cobb, engineer Matt Ross-Spang and assistant Mike Stankiewicz. They used an array of vintage tube and ribbon mics Cobb brought in, as well as vintage preamps and EMI style compressors...Drive By Truckers were in Studio A with producer David Barbe, engineer Ross-Spang and assistant engineer Stankiewicz. The band cut almost entirely live in the room, with some overdubs added after the basic track was cut. It was recorded almost exclusively analog on 2-inch tape using a Studer A827. They also used Ross-Spang's Spectra Sonics Sidecar... St. Paul & The Broken Bones were in Studio A with producer Paul Butler, engineer Jeff Powell and assistant Stankiewicz. The project was recorded almost entirely live as a band, with Paul occasionally in a booth of his own. Also, this project was recorded almost exclusively analog on 2-inch tape using a Studer A827. They also used the Spectra Sonics Sidecar, and Powell's RCA 44 as an ambient mic and occasionally on Butler's vocal. The main vocal chain was a Flea 47 through a vintage Neve 1272 preamp. The studio's two Echo Chambers were used on almost every song, as well as the EMT 140 Plate reverb in studio A...Jes-Seh Wells was in Studio A with producer Cobb, engineer Eddie Spear and assistant engineer Zack Pancoast... The Mae Trio was in Studio B with Erick Jaskowiak producing and engineering, and Rachael Moore assisting...Jeff Ross project was in Studio B with Rob Stokes producing and

engineering and Panacoast assisting (Ross also produced)...Yellowcard was in Studio A with Neal Avron producing, Stankiewicz engineering and Zaq Reynolds assisting...Producers Buddy Miller and Tim Lauer worked in Studios A and B on the TV show *Nashville*, with Mike Poole engineering and Stankiewicz assisting.



The Tip at Blackbird Studios.

Will Evankovich and engineer Alan Hertz...Electra Mustaine worked on new material in Studio D with engineer Ben Fowler...James Bay's most recent Grammy Award-nominated album was tracked and mixed in Studios D, E, and G with Jacquire King producing and Lowell Reynolds engineering...The Tip worked on new material in Studios A, B, C, and I with engineer Mills Logan (as well as some Blackbird Academy students). The Tip self-produced...Union Sound Treaty was in Studios A, B, C and I, with Blackbird Academy students engineering. Union Sound Treaty also self-produced...The Wans were in Studio A with engineer Toby Wright for The Blackbird Academy Spring Workshop. The Wans self-produced.

BLACKBIRD STUDIOS

Amos Lee was in Studios D and F with engineer Vance Powell (Lee self-produced)...Tucker Beathart worked on his latest album in Studio D with producer Angelo Petraglia and Ernesto Olivera...Styx worked on its current album in Studio A with producer

Country artist Britt Daniels worked on his album *Living It Up*, with Dennis producing and engineering.



Music Band at Bomb Shelter

THE BOMB SHELTER

The Deslondes with guest Twain Tres worked on the 7-inch "Serpent/Heaven" (New West Records), engineered by Eduardo Duquesne (aka Special ED) and mixed by Andrija Tokic...Music Band worked on *Wake Up Laughing* (Infinity Cat),

produced, engineered and mixed by Tokic...Bill Scorzari worked on the album *Through These Waves*, with Jonah Tolchin producing and Billy Bennett engineering, mixing and mastering...The Animen worked on the album *Are We There Yet?* (Noisolution), with Tokic producing, engineering and mixing...The studio also added the following gear: MCI JH16 24-track tape machine, Kush Audio Fatso, and a 1970s Univox SR-55 drum machine.

Continued on p.68



Michael Jacobs and Daniel Dennis at Prime Cut with their Native American Music Awards...

PRIME CUT STUDIO

Native American artist Michael Jacobs and Prime Cut Studio owner/producer Daniel Dennis won three awards at the Native American Music Awards for Best Pop, Spiritual and Folk recordings off his 2015 release *Resisting Shadows*...Country artist Katie Kendall worked on her self-titled EP, with Daniel Dennis producing and engineering...Rock band Jeremiah Freed was in the studio with Nick Goodale and Dennis producing, and Dennis also engineering...Country artist Alecia Aichelle worked on her album *Golden*, with Dennis producing and engineering...Folk/rock duo Paper Trials worked on an EP, with Dennis producing and engineering...

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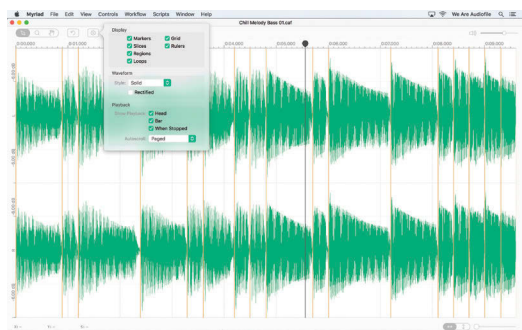
Tech // new products



FOSTEX HP-A4BL DAC/AMP

Headphone Power and Quality Conversion

The HP-A4BL from Fostex (\$499.99) features newly designed digital circuitry and high-performance headphone amplifiers, balanced headphone output, 1/4-inch TRS output and Hi/Lo gain switch. The unit is compatible with USB Audio 2 (Mac/PC) and offers a Burr-Brown DAC circuit operating at 24-bit/192kHz PCM and DSD audio. Rear panel features include a USB input, S/PDIF input and output (optical), and RCA analog outputs. Front panel features include master volume, output selector, hi-lo gain, a two-stage filter and input selector.



AUDIOFILE ENGINEERING MYRIAD SOFTWARE

Batch Processing for Pro Audio

Myriad (\$99.99) is a next-generation batch processor featuring a redesigned GUI, significant performance gains, and integration of the Goodhertz Good Dither and Goodhertz Sample Rate Converter. Over 100 Actions are included, and users can also save an unlimited number of custom-configured User Actions.

Myriad supports Broadcast WAV metadata, SoundCloud, Dropbox and advanced FLAC and Vorbis conversion options and support for compressed files on input, including AAC, MP3, FLAC, Apple Lossless and more.



FLUID AUDIO FPX7 MONITOR

Co-ax Ribbon Design

Building off its Fader Series, Fluid Audio has released the FPX7 monitor (\$549.99 per unit) featuring a co-ax ribbon design. Other features include Class-A/B amplifiers, a toroidal transformer for superior noise characteristic, optimized composite cone woofers and an AMT tweeter, which is mounted in the center of the woofer in a coaxial configuration, making this speaker the first of its kind. A custom-designed waveguide provides a wide dispersion with an expansive sweet spot. A DSP-controlled crossover ensures there is zero variance speaker-to-speaker.



LEWITT LCT 640 TS MICROPHONE

Dual-Output Condenser

The new Lewitt LCT 640 TS (\$899) has a dual-design 1-inch capsule featuring a dual-output mode enabling engineers to record the front and back diaphragm individually. This makes it possible to change and fine-tune the polar pattern seamlessly all the way from omnidirectional to figure-8, as well as to turn the recording direction of the microphone by 180 degrees, even after the recording session. Additionally, users may record "Mid-Side" stereo with only one LCT 640 TS. The mic comes bundled with a DAW plug-in called Polarizer (Mac/PC), making it possible to easily change the polar pattern during post-production. Included is a LCT 40 SHx suspension and an LCT 40 Wx windscreens, all packed into a robust black military-grade case.



ALTINEX CM SERIES FRAMES

Handy Studio Power, Connectivity

Altinex now offers the CM Series bezel frames for use with the company's TNP Jr. or CNK Jr. Series Tabletop Interconnect Products. Available in 2- (\$110), 3- (\$142), or 4- (\$185) space configurations, the new frames can be integrated into an audio workspace and tailored specifically to the requirements of the user's desktop. Two interconnect boxes can be stacked using a dual frame—making them face opposite sides of the table, for example—or stack three or four units next to each other.



STERLING AUDIO MX SERIES MONITORS

Three Models, Nextgen Materials

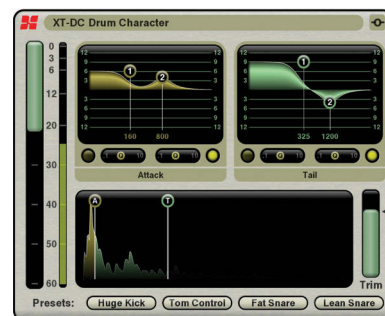
The new MX Series speakers from Sterling Audio include three models: the MX8 (\$249.99), which features an 8-inch low-frequency driver and 1-inch silk-dome tweeter; the MX5 (\$149.99), with a 5-inch woofer and 1-inch silk-dome tweeter; and the MX3 (\$99.99), with a 3-inch woofer and 3/4-inch tweeter. The dual-axis WaveGuidanceVH technology promises a very wide sweet spot with wide and high dispersion. All three models feature variable highpass (+2, 0, or -2 dB) and lowpass (-3, 0, or +3 dB) filters, and the MX8 and MX5 provide balanced XLR, balanced 1/4-inch TRS, and unbalanced RCA inputs; the MX3 offers unbalanced RCA inputs.



AUGSPURGER SOLO 12MF MONITOR

Small Footprint, Big Power

Augspurger has released its latest active monitor, the Solo 12MF (\$12,995 per pair). The freestanding system employs a single 12-inch low/mid driver along with the breakthrough 30-percent smaller "MF"(midfield) horn, introduced with the Augspurger Duo 8 Mini-Main monitor. Onboard DSP amps provide power, delivering 600 watts RMS per side with .003 THD. Optional matching subwoofers are available in 1x12, 2x12, 1x18 and 2x18 sizes, expanding the system to a three-way, full-range solution. Wattage is then boosted to 1,100 per side.



HARRISON MIXBUS VERSION 3.2

New Features, New Plug-in

The latest version of Harrison's Mixbus DAW (\$79) features a new export report and analysis window, including LUFS loudness measurement, LU (Loudness Unit) histogram, LU Range, Waveform display, with peak indicators, Peak Sample value + True Peak value, and Spectrogram view. These tools provide an extra level of confidence that exported tracks meet typical requirements for distribution and broadcast. The XT-DC drum character, the newest addition to the Character Bundle (\$219), provides powerful DSP to equalize the two parts of a drum hit separately. It utilizes two separate equalizers; the first dynamically tracks the initial attack while the second dynamically tracks the tail.

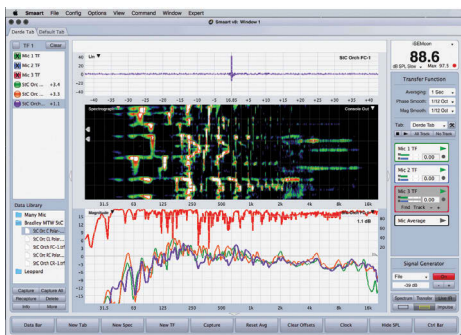
New Sound Reinforcement Products



LECTROSONICS WIRELESS DESIGNER

Enhanced System Setup and Operation

Lectrosonics' latest version of its Wireless Designer Software (available as a free download) offers enhancements, workflow streamlining, importing of frequency lists, and the creation of custom frequencies. This allows other wireless systems to be included in the overall frequency coordination. The software also provides an overall view of Lectrosonics' wireless systems, including all receiver mainframes that are connected. A summary of each channel is displayed with real-time indications for essential levels and settings on each installed module. With multiple receivers, the main display window can be scaled and zoomed, and several color themes are provided.



RATIONAL ACOUSTICS SMAART 8

Upgrade Offers User-Requested Improvements

The popular multichannel system analysis and optimization software Smaart is now out in version 8 (\$895 introductory price; \$995 after June 15) featuring new program workflow and other user-requested enhancements. The GUI takes you through device selection/configuration and automatically creates Spectrum measurements while device and measurement configuration is managed through a single window. Other enhancements include the Creating a Transfer Function measurement, which now automatically creates the accompanying Spectrum contributors. V8 now organizes configurations into tabs, which include not only the configured measurements but also the layout and plot view. Other improvements include multi-window capability, hide/show interface controls, command menu/bar, and improved data storage and APL.



DIGICO SD10 STEALTH CORE 2

Upgrade Brings Power and New Features

The latest upgrade to DiGiCo's SD10 features many system improvements, including 132 channel strips, 56 + Master + 24 x 24 Matrix buses, 214 DiGiTuBes, 214 Multiband Dynamic options, and 214 Dynamic EQs. Scheduled for release this summer, the Stealth Core 2 upgrade option will be available for less than \$2,200, with discounts offered to existing DiGiCo customers.



SSL SYSTEM T

Networked Broadcast Production Environment

SSL's new System T (priced per configuration) allows hardware and software control interfaces—and high-quality stage boxes—to be placed anywhere on a network. Using the AES67 transport standard, the system fully supports Dante-based I/O and routing featuring Dante HC connectivity. System T can incorporate multi-touch and gesture-driven screen technology, hardware control, and an intelligent, intuitive workflow. System scaling requires only additional networking switch capacity, not proprietary routing hardware, making large-scale deployment extremely cost-effective. Up to three consoles or control interfaces can access a single or fully mirrored redundant pair of Tempest processor engines. Up to three engines can be integrated using SSL's optimal core processing for real-time, 64-bit CPU-based, floating-point mixing and processing.

Tech // reviews

LINDELL AUDIO 100% LINDELL BUNDLE

Four Plug-ins With New Takes on Classic, Modern Gear



The 100% Lindell Bundle includes four plug-ins: two dynamics processors and two equalizers.

Lindell Audio is a Swedish company offering a range of hardware and software products for audio production. The 100% Lindell Bundle includes all four plug-ins made by the company: the 254E, PEX-500, 7X-500 and 6X-500. The collection comprises digital emulations—with significant modifications—of classic Neve, Pultec and UREI hardware units and the modern Lindell 6X-500 (a transformer-coupled preamp and 2-band, passive equalizer). I reviewed Version 1 of the bundle in Digital Performer V. 8.06 and 9.01 (DP), using an 8-core Mac Pro running OS X 10.9.5.

254E COMPRESSOR/LIMITER

The 254E emulates—with slight modifications—the vintage Neve 2254E compressor/limiter, which uses a diode bridge as its gain-control element. The limiter and compressor sections each have separate threshold, mode and release-time controls; the latter each includes an auto-release setting. The mode control for each processor is a three-way switch that selects slow or fast attack time or bypasses the processor. (The compressor's fast attack time is equal to that for the Neve 2254E, which offered only one attack time.) The Ratio control serves the compressor and selects values from 1.5:1 to 6:1. Other controls adjust makeup gain for the compression stage; select dry, wet or mixed signal at the output (the Mix setting produces parallel compression); activate and adjust a highpass filter in the sidechain; bypass the entire plug-in; and switch the VU meter to show input, output or gain-reduction levels.

PEX-500 offers three bands of EQ, two for highs and one for bass frequencies. You can select 10, 15 or 20 kHz for the high-shelving filter's corner frequency; this filter can only attenuate gain, using a separate control. A high-frequency bell-curve filter—fitted with separate boost and bandwidth controls—boosts gain at 3, 4, 5, 6, 8, 10 or 16 kHz depending on a switch setting; this filter can't attenuate gain. A low-shelving filter offers separate boost and attenuation controls that act at the same corner frequency: 30, 60 or 100 Hz. Because the equalization slopes are different when boosting versus attenuating, simultaneous and proportionate use of both controls at the same corner frequency will not cause complete cancellation; rather, you end up with complementary and asymmetrical boost and cut in adjacent bands. This, along with passive circuitry, is the root of the clear and punchy Pultec sound that the PEX-500 emulates.

In stereo configurations of the plug-in, you can flip a switch to apply equalization to either the mid or side channel (instead of processing left and right channels). A global bypass is provided for the EQ. The Input Pad control attenuates the equalizer's input signal.

7X-500 LIMITER

The 7X-500 models the Lindell Audio FET compressor by the same name. A UREI 1176-inspired processor, the GUI provides both

The GUI displays threshold and I/O levels in calibrated analog terms instead of using the actual digital values you're working with in your DAW (for example, +4 dBu in the GUI equals -18 dBFS). It's otherwise very intuitive.

PEX-500 EQ

The Pultec-inspired

TRY THIS

To get a truly explosive sound on room mics for drums, chain the 254E and 7X-500 in series. Select the highest available ratio for each plug-in, fast attack and recovery times for the 254E, and medium attack and release times for the 7X-500. Be sure to wear a Kevlar jacket!

continuously variable and stepped attack and release time controls; a button activates the continuously variable controls. The stepped controls are three-way switches with slow, medium and fast settings. Other buttons toggle the compressor and stereo linking on and off, and a rotary control varies the amount of inter-channel linking from 0 (fully unlinked) to 100%. Other virtual knobs adjust input gain (and simultaneously threshold), makeup gain and dry/wet mix (for implementing parallel compression). Two three-way switches respectively select the ratio (4:1, 12:1 or 100:1) and the corner frequency for the sidechain's HPF (100 or 300 Hz, or unfiltered). A 20-segment, LED-style gain-reduction meter completes the package.

6X-500 PREAMP AND EQ

This plug-in emulates the analog Lindell 6X-500. High- and low-frequency boost controls act on switch-selectable frequencies: 6, 10 or 16 kHz for high bell-curve boost, and 30, 60 or 100 Hz for low-shelving boost. (These filters can only boost, not cut.) You can separately adjust the provided high- and lowpass filters between 20 and 20,000 Hz and select any of five available slopes—ranging from 6 to 36 dB/octave—for each filter; the HPF and LPF can also be independently bypassed. Two switches respectively invert the plug-in's phase and bypass its boost circuits.

The PEX-500, 6X-500 and 7X-500 each provide an Analog button; when it's switched on, it emulates the noise, output-transformer

saturation and power-supply hum produced by the plug-in's hardware counterpart.

ROCK ON

The 7X-500 sounded phenomenal on a crunchy electric guitar vamp. The guitarist played palm-muted, descending eighth notes on the lower strings alternately with blazing triads on the higher strings. By selecting a medium attack, fast release, 100:1 ratio and 300Hz corner frequency for the sidechain's HPF, I could make the 7X-500 clamp down hardest on the triads and make the crunchy, staccato bass line pop out and drive the groove. Awesome! The 7X-500 also sounded very good on bass guitar with a parallel-compression setup; a slow attack and fast release made the track pulse, and activating the Analog function warmed the sound nicely.

The 254E sounded outstanding on room mics for drums—in fact, better than the 1176-inspired 7X-500 (which was ho-hum in this application). Using a fast attack and recovery for the compressor—and a 6:1 ratio—produced an explosive sound. I could tailor how much the kick got compressed versus the snare by adjusting the sidechain frequency between roughly 80 and 200 Hz. Using similar settings, but using parallel compression and kicking in the limiter, lent an urgent sound to rock male vocals; I could strongly emphasize the singer's breathing, lending a desperate vibe to the track. Cool!

I got very good results using the PEX-500 on kick drum and electric

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bass guitar tracks; the interacting boost and cut controls for the low-shelving band cranked up the low end while simultaneously clearing out muddy frequencies, creating a punchy and focused sound. Used on DP's master bus, boosting and cutting the midrange channel at 30 Hz helped bolster a mix's weak bottom impressively without blurring the upper-bass range. The PEX-500 wouldn't be my first choice for equalizing vocals, however (and in all fairness, neither would a Pultec equalizer); its selection of low- and mid-bass shelving curves didn't offer enough flexibility and control for sculpting a singer's low end. But I loved how the Analog function warmed up and thickened an edgy, thin-sounding female singer.

I got a big electric-bass sound using the 6X-500 by cranking the input gain to distortion, using the LPF to roll off resulting top-end fizziness and boosting generously at 60 Hz. But as it only offers filters for bass and high frequencies (and can only boost their gain), I didn't find the 6X-500 particularly useful for equalizing vocals and midrange-y instruments such as electric guitars. Used on a full mix (a largely acoustic ballad) to lightly sweeten extreme highs and lows, the Analog function caused audible, unpleasant distortion. With that

PRODUCT SUMMARY

COMPANY: Lindell Audio

PRODUCT: 100% Lindell Bundle

WEBSITE: Plugin-alliance.com
(distributor)

PRICE: \$349

PROS: Three of the four plug-ins sound very good to outstanding. Compressors have internal sidechain filters, allow parallel compression. PEX-500 includes M/S mode. Reasonable price.

CONS: 6X-500 is mediocre. No external sidechain inputs for compressors. Limited filter selections for equalizers. 254E displays confusing levels.

function disabled, the 6X-500 sounded okay but didn't produce as round of a bottom or as sweet of a top end as my SPL Paseq equalizer plug-in (the gold standard for passive-EQ emulation). And the Paseq preserved the mix's depth much better.

I wished the two dynamics processors had external-sidechain inputs. The PEX-500 would benefit from having output-level meters, and separate gain-reduction meters for the 254E's compressor and limiter would aid setup. My only other complaint concerns the graphics for vertically actuated toggle switches: simulated light reflection off the toggles made it slightly difficult to discern the switches' current settings.

But the 100% Lindell Bundle offers a lot for your money. The only underachiever in the lot is the 6X-500. Rock engineers will especially appreciate the two dynamics plug-ins, the 254E and 7X-500. Considering the product's relatively low price, that's enough for me to give the 100% Lindell Bundle a firm buy recommendation. ■

Michael Cooper is a recording, mix, mastering and post-production engineer and a contributing editor for Mix magazine.



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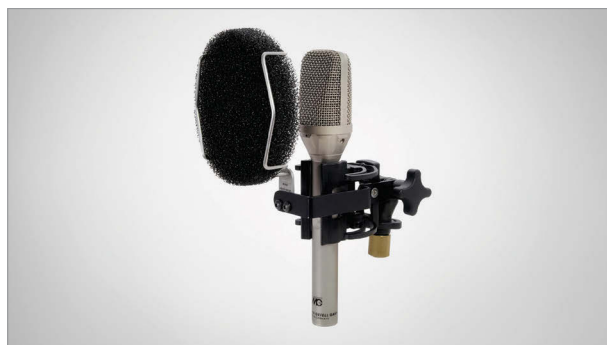
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BLACK LION AUDIO MICRO CLOCK MKIII

Six Word Clock Outputs With Isolated Drivers—and Portable



The Micro Clock MkIII has Word Clock, Optical, AES, and RCA S/PDIF outputs capable of operating at 44.1, 48, 88.2, 96, 176.4, 192, 352.8, 384 kHz.

Black Lion Audio's Micro Clock MkIII comes as a one-third rackspace unit with external 9-volt DC wall wart power supply and 1U rack-mounting kit. It is the successor to the company's Micro Clock MkII and adds a lower-jitter crystal oscillator, output transformers for galvanic isolation and separate, isolated output drivers for the six word clock BNC output jacks.

The Micro Clock MkIII simultaneously generates AES11 clock signal out an XLR 110-ohm balanced out and also S/PDIF clock out optical Toslink and 75-ohm unbalanced RCA jacks. It is capable of up to a 384kHz clock frequency out the six BNC output jacks; the AES and RCA S/PDIF go up to 192 kHz; the optical S/PDIF output is good to 96 kHz.

It has a dimmable large LED clock frequency display and a single front panel rotary controller to set any of eight clock frequencies, including: 44.1, 48, 88.2, 96, 176.4, 192, 352.8, 384 kHz. Jitter, or the deviation from true periodicity of an ideal and perfect clock signal, is specified to be 1.92 picoseconds RMS on the 75-ohm un-terminated BNC clock outputs.

The MkIII steel clam-shell case has an overall DIY build quality, but the inside reveals an Atmel SAM3X/A Flash microcontroller and Silicon Laboratories' Si530/ 531 XO crystal oscillator chips with on-board DSP phase-lock loop circuitry. There are separate Pulse PE-

65612NL digital 1:1 isolation transformers for both the AES/EBU and RCA S/PDIF outputs, while a third Pulse T3001NL isolates the 75-ohm BNC clock signal going to the six BNC line drivers.

WHAT TIME IS IT?

In the nascent days of digital audio, the early (primitive by today's standards) converters had "sketchy" clocks, and there was an immediate sonic improvement when connecting to a low-jitter external clock. But today, modern clock chip sets and crystals have vastly improved in jitter performance and in price, and are used widely even in the least expensive "semi-pro" digital interfaces.

In simple DAW-based recording studios with a single interface, the internal analog-to-digital (A/D) converter generates the clock signal to "clock in" digital audio at a selected sample rate. The performance of the internal clock within

TRY THIS

For my superfast initial comparison of clock signals, I built a word clock BNC A/B switch that worked okay for 44.1 and 48 kHz sessions—I could throw the switch during playback and there would be a "click," but most of the time no error warning would pop up. I also built an AES/EBU A/B switch to try to hear any differences when using AES11 clocking from the Benchmark Media ADC1 and the Black Lion Audio Micro Clock MkIII on pre-recorded music tracks. Again, I could hear no difference. This led me to manually switch BNC clock cables to remove any chance of the switches affecting the clock signal/performance.

PRODUCT SUMMARY

COMPANY: Black Lion Audio

WEBSITE: blacklionaudio.com

PRODUCT: Micro Clock MkIII

PRICE: \$999 MSRP

PROS: Small size and price.

CONS: No 0.1% and 4% pull-up/pull-down.

a modern converter is the same or better, as it would be when using an external clock source. Most external clocking issues stem from the vagaries of a converter's slave clock signal recovery/locking circuitry, external clock cabling issues caused by excessive cable lengths, and/or lack of proper 75-ohm termination.

However, for more complex digital audio/video systems with multiple digital processors, digital consoles, MADI or Dante interfaces, and multichannel delivery formats, a master clock is necessary. All of the digital components in these large systems must be clocked from one centralized word clock generator using multiple BNC outputs.

MASTER CLOCKING

So my first test was to substitute the Micro Clock for the existing multi-thousand dollar master clock in a Euphonix System 5 console I often work on. The console's SC264 computer, AVID MADI interface (to connect to a Pro Tools 11 HDX rig), and two DirectOut Technologies Andiamo MADI AD/DA converters were clocked perfectly from the Black Lion Micro Clock MKIII's BNC outs with no difference in operation at all. (As a side-note, the Micro Clock is not capable of 0.1-percent and 4-percent pull-ups/pull-downs if you require syncing NTSC video to film or to PAL video.)

For recording in Pro Tools 12 HDX at my mix studio, I prefer the sound of my Benchmark Media ADC1 A/D converter instead of the internal converters in the old Digidesign HD 192 interface, so I have to externally clock the HD 192 using the ADC1. For playback, I rely on Benchmark Media's DAC1 for digital-to-analog conversion with both the ADC1 and DAC1 connected using the HD192's In/Out AES/EBU XLR Enclosure

connectors. The ADC1's BNC word clock out is connected to the external clock input of the HD192 using a short, 75-ohm terminated BNC cable. The DAC1 is always clocked from the AES/EBU digital audio signal coming out of the HD 192, and was the only DAC used in all of my listening tests for this review.

I compared 24-bit/44.1 kHz song mixes I did and know well and also recent 32-bit float solo acoustic guitar and grand piano recordings I made at 96 kHz in Pro Tools using the ADC1. I listened to each one separately clocked internally and externally from either the ADC1 or the Black Lion Audio Micro Clock MKIII. It was not intended as a clock shootout or advanced technical treatise; I was just interested to see if I could hear a difference in sound quality.

I would physically switch clock cables and terminations and wait for a few seconds (after Pro Tools pushed a clocking error dialog) and then go into Play. I used my monitors at various loudness levels and used several sets of headphones trying to detect any differences. I looped very short sections to see if I could hear changes in ambience or tonality.


I could hear no difference. There might be differences to some listeners, so I randomly asked other engineers to take a listen, and nobody could hear any change nor could I tell any difference using any particular program style or recording level.

I really wanted to hear a difference, and sometimes I thought I heard differences such as an overall level jump right after changing clocks. This "level jump" was random and not repeatable. If I were still using an old Digidesign 888 interface and Pro Tools 5, I'm sure I would hear an improvement right away.

CONCLUSION

The Black Lion Audio Micro Clock MkIII is good value in a small package. Costing about one-third as much, it stood in for a much more expensive clock in the Euphonix System 5 studio. If you have to externally master clock multiple digital devices in your studio, the Black Lion Audio Micro Clock MKII is a good bet. ■

Barry Rudolph is an L.A.-based engineer and educator. You can visit his Website at www.barryrudolph.com.




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iZOTOPE OZONE 7 ADVANCED

Upgrade Brings New Processors and Workflow



Ozone 7's features include a new Codec Preview mode and updated IRC Limiter

One of iZotope's all-time great products is its Ozone mastering suite. The software has enjoyed great popularity among mastering engineers, and even mixers. The overall sound, power, flexibility and ease of use continually improve with each version. The last few updates have seen a substantial evolution, with Version 4 running as a DAW-hosted all-in-one plug-in, Ozone 5 adding modular component plug-ins for DAW use, and Ozone 6 adding a stand-alone version, and the ability to alter the processing signal flow.

Ozone 7 keeps the new features rolling with highlights including a new "Codec Preview" function for auditioning lossy data compression during the mastering process, and another improved version of the IRC (Intelligent Release Control) limiter. Version 7 also adds four new vintage-inspired modules, paying homage to classics like the Pultec EQ, Fairchild limiter and Studer A810 tape machine.

All of the features that have attracted users to previous versions of Ozone remain intact in 7. First and foremost is the fact that an entire processing chain can be stored as a preset and applied to different mixes on a project. Another huge draw is that any module that seems to benefit from it offers multiband and/or mid-side processing. The ability to compress or equalize the center of the mix where vocals, kick, snare, and bass live, independently of the sides where stereo guitars, synths, overheads, and time-based processors reside, is incredibly handy.

The other big draw to Ozone is the Maximizer module. This is iZotope's answer to the end of the chain, brick-wall limiter. If you've been living in a world of Waves L1, treat yourself to an Ozone 7 demo and take a taste. For years, iZotope has been retooling the IRC limiter, which is the basis of the Maximizer, and the results continue to impress. This processor has always provided a simple way to smash the daylights out of a mix, providing maximum loudness while fighting to keep transients from turning to sludge. To provide big boosts in perceived loudness without introducing noticeable artifacts like pumping and distortion, the IRC continually alters the release time to adapt to each "over" and reduce it in a way that isn't audible.

IRC IV

The fourth and latest incarnation, IRC IV, takes this to a whole new level. As I understand it, the new algorithm uses a complex, automatic, multiband limiter. As the overall signal breaks the limiting threshold, certain frequencies are more aggressively attenuated, while other harmonically complementary frequencies are affected less, so the audible pumping and distortion can be masked.

Three modes offer different flavors of the overall effect. The Classic mode has a bit darker sound than the other two, but on denser mixes, it has a louder-sounding midrange, more than the meters would suggest. Modern mode seems brighter, and the stereo image grows much wider. In general, the sound is a little crisper in the top end. The Transient mode seems to clean up some of the lower-midrange clutter and keep the body of drums punchy, even in a dense fog of midrange. On more open mixes, it has a brighter sound, similar to that of the Modern setting.

Any of the three processing modes can be further altered by the controls available with Ozone 6's Maximizer. These include a "character" slider, which further tailors the attack and release times; a "transient emphasis" control that

TRY THIS

When stacking vocals or guitars, the sound thickens because of the subtle timing difference between the layers. This is less desirable in the consonants or picks attack than it is in vowels or sustained chords. Using Ozone's dynamic EQ, try dipping aggressively around 5 kHz with a medium-wide Q and a fast attack and release on the background layers. Set the threshold so that only the percussive sounds trigger the attenuation, while held notes in that range are still audible.

reshapes transients before the limiting process, keeping them punchy; and a “stereo unlink” control. The cleanliness of the limiting is incredible. Obviously, overdoing it can always lead to muddy, distorted garbage, but I’m always surprised by how hard I can push it, and how loud the track becomes before chaos ensues.

VINTAGE EQ

The standard Ozone EQ is a powerhouse, featuring eight bands, each selectable between bells, shelves, and HPF or LPF with a variety of character selections within each filter type. That said, sometimes there is nothing like a Pultec-style program EQ in your mastering chain. The new Vintage EQ offers iZotope’s renditions of both the EQP-1A (the classic high/low equalizer) and the MEQ-5 midrange EQ.

There are countless plug-in re-creations of these classic passive equalizers, and the Ozone Vintage EQ holds its own, to my ears outperforming the Waves PuigTec, particularly in the bottom end. The Vintage EQ seemed a little fuller, but also tightened up more when combining boosting and attenuating. With some tweaking, I was able to get the Vintage EQ pretty close to the UAD Pultec, though the UAD version still seemed to create some sort of harmonic content that I couldn’t pull out of the Vintage EQ.

The GUI of the Vintage EQ distinguishes it from its peers. Rather than flippers and knobs that resemble the actual hardware, there are continuously variable sliders for boost and cut, with clickable dots, arrayed in a circular fashion, for frequency selection. It also provides a visual representation of the EQ curve, which is particularly nice when using a classic Pultec trick of boosting and cutting the lows simultaneously.

Altogether, the Vintage EQ is a great incarnation of a Pultec-style EQ plug-in, providing all of the phase-coherent sculpting capabilities with smooth, musical boosts. The warm, rich character of the bottom end is top-notch. This one plug-in can take any mix born and raised in the box and impart a tonality that screams analog hardware. Everything sounds richer and fuller after passing through it. Best of all, this sound is available in a mid-side mode, which is not found on many of the competitors.

VINTAGE TAPE

The 4-band Exciter, which can add varying amounts of harmonics to each of the four user-selectable frequency ranges, remains in Ozone 7. The different algorithms model a few different types of tubes, and less specific characters like Retro, along with a flavor based on tape saturation. While this option is still available in Ozone 7, the new Vintage Tape module expands quite a bit, providing controls like tape speed selection between 15 and 30 ips, as well as biasing controls.

In most cases the effects of the Vintage Tape module are subtler than the sounds achieved by the Exciter. However, when using the Vintage Tape module as the first processor in the chain, as iZotope recommends, its benefits become greatly pronounced by the other processors down the line. By activating the plug-in with the default settings, the track is woken up, sounding warmer, clearer and punchier. The sound is truly reminiscent of printing anything to tape and hearing playback, except, of course, devoid of the hiss.

Some really interesting sounds can be produced by slightly under-biasing the machine, brightening up the top end. Likewise, kicking up the Low Emphasis in moderation does a nice job of pronouncing the low-

PRODUCT SUMMARY

COMPANY: iZotope

PRODUCT: Ozone 7

WEBSITE: www.izotope.com

PRICES: \$499 Advanced, \$249 Standard

PROS: Adds useful new features to an already great product.

CONS: No major fundamental changes.

end thump of electric bass. This is, unfortunately, another one of the slower Ozone processors regarding sample-based delay, so be careful using it on a bass track already loaded with plug-ins. I like using it in the mastering chain, as it vitalizes the lows in a mix. Another nice touch of the Vintage Tape module is the ability to complement the tape-sounding odd-ordered harmonics with a little splash of even-order

harmonics, which aids in shaping the overall sound.

VINTAGE COMPRESSOR

The Vintage Compressor is probably the least flashy of the new processors. I first tried it as a stand-alone plug-in on vocal and bass. The sound was always very subtle, and I generally found myself switching to one of my go-to processors instead. Using it as part of a mastering chain, however, I realized how effective a tool it is. While manual attack and release times are available, the operating mode, selectable between Sharp, Balanced and Smooth, seemed to tweak the user setting and allow for incredibly smooth compression.

The processor could fatten up the body of a mix or provide a preliminary stage for controlling dynamics, but unless I deliberately overdid it, I couldn’t hear any pumping or typical compression artifacts. The Sharp setting was effective on a drum stem, or more percussive master, as it preserved the attack well. Conversely, the Smooth setting could turn a track into warm butter, removing any edgy transients without making it sound muddy or flat.

CODEC PREVIEW

Conceptually, one of the sharpest additions to Ozone 7 is the Codec Preview tool. Especially with all of the harmonic enhancement that the Ozone modules can provide, it is important to know what these changes will sound like once the song is encoded for download or streaming. Codec Preview allows for a real-time comparison of the un-encoded PCM mix versus the AAC or MP3 codecs at varying bit rates. While these codecs are widely used in the music world—by Pandora, iTunes and others—they don’t represent the entirety of data compression widely used throughout streaming services. For example, the free Ogg Vorbis codec, which is used by services including Spotify, is not represented. That aside, the feature is a welcome addition, and the option to Solo Artifacts so that you can hear exactly what is being removed by the codec is a nice touch.

THE TOTAL PACKAGE?

In an era where updating operating systems increasingly requires updating software—where in both cases features might disappear, performance may seem to suffer, and we get a few extra gimmicks to ease the pain—I was nervous about a new version of Ozone. However, nothing seems to have been removed, nothing got worse, and the new modules sound great. The addition of codec previewing and a new feature that allows you to batch encode all of the album tracks as fully meta-tagged AAC or MP3-encoded files has only expedited workflow. I’m still waiting for the day that Ozone takes on DDP exports to truly finish a disc-based mastering job, but CDs may be dead before that happens.

If you’re not using Ozone, are still on version 5, or are light on third-party dynamics plug-ins, it would be well worth the jump to 7 for the new processors. ■

Continued from p.15

into the wall, it also handles the system delays and sub speaker management. Once you get above 180-200 Hz, the Stage A control room is pretty much flat.

For near-fields, they opted for Neumann KH 310s supplemented by the Neumann KH 810 subs; the full rig has been augmented to handle the Auro-3D audio format. The BSS 806 accepts a Dante feed and also offers a straightforward remote control to have easy access to preset switching for stereo, 5.1 and sub-mute, and it handles the Auro-3D's 10 outputs. When switching between the Neumanns and the ADAMs, the transition was incredibly smooth. The sweet spot is huge. You can pretty much walk around the room without losing too much perspective.

"When they told me they were committed to the SSL, I did tell them that this console was going to be a conversation. All composers would ask about it," says A-list film score mix engineer Dennis Sands, who serves as facilities/technical consultant and helped with the mic locker selections. "But they were adamant in going for an analog console. The mic pre's in the Duality are SSL's most high-end pre's, like the ones in the 9000 Series, and they sound spectacular. And the monitors are the best-sounding in-wall speakers I've heard in any facility, and they translate so well into other stages and mix rooms."

There are also various mic pre flavors available, including 32 Dante-enabled Millennia HV-3R channels (four pieces, each 8 channels) positioned in the live room. The Control Room has 36 channels of AMS-Neve 88RLB, 12 channels of BAE 312B, two channels of AEA RPQ500 and four channels of Meris 440. All of these preamps line up perfectly with the SSL channel layout, with a clear visual representation of signal path. Other than the nine racks of these 500 Series units, there is no outboard to be seen.

Mazagg's philosophy is: "When you have a recording room that sounds so good, there is no real need for additional outboard. The workflow couldn't be simpler. You have a source, you mike it up, set the gain on the preamp of choice, record into your DAW and listen back on the monitors. This is the first time everything works the way I learned it in school. It lets you focus on the music, and the technical stuff just blends into the background."

Reverb is in the hands of a Lexicon 960 and a TC Electronic System 6000 mk II. Any plug-ins needed are handled by UAD and Waves.

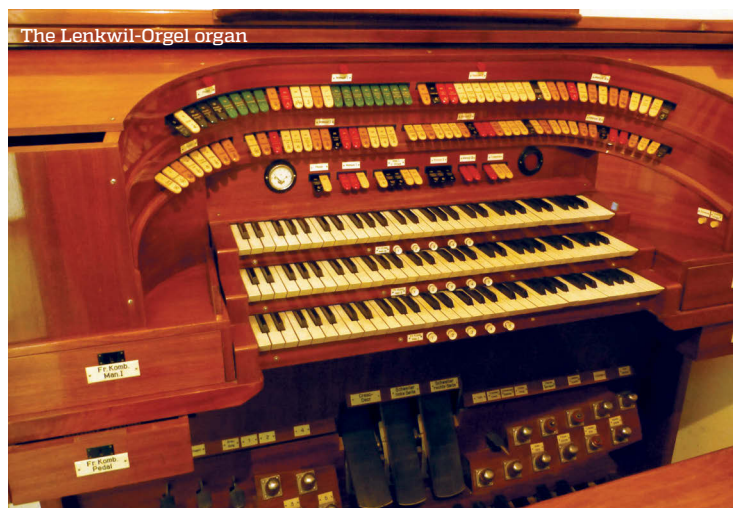
STAGES B AND C

Stage B, focusing more on popular music production, is now up and ready to go, and it sounds great. The room has been treated to allow for a very flexible acoustic—roomy with a nice 0.7-second blooming reverb on one end and dry and snappy for close-miking on the other. If you could look at a cross-section of the room, it would be half the shape of a violin.

Control Room B and its iso booth are nearly finished and will house a 48-channel SSL Duality Delta, a smaller version of the Stage A console, so everything done in Stage A will translate straight into B for mix and overdub mode. Engineers can start mixing in B while still tracking in A. Control and Live Rooms B are tied into Stage A, with the option to record the rock band in B and track the string arrangement in A simultaneously.

Studio C is actually a relatively smaller pre-production/notation room, also tied into Control A. It has its own booth doubling up as a composer's lounge.

Last but not least, there's the piano room. Currently Synchron has two



pianos, a Bösendorfer and a Steinway D, both handpicked. And there are a few others currently being custom-made. Again, it is tied, via Dante, into all control rooms.

The entire studio is linked digitally via a massive Dante network. The longest analog cable run to the preamps is about 100 meters long, and the total amount of analog wiring is 6 kilometers. The network cabling that carries the Dante signals totals a whopping 38 kilometers!

All monitor duties for the players happen in the live room. Routing signals within the Dante network couldn't be easier, and a dedicated monitor engineer is stationed downstairs, near the conductor, with a Solid State Logic L500.

Recording duties are taken care of by three rigs comprising two PCs and a Mac. The whole recording side of the house is clocked by an Antelope 10M, which in turn is distributed to an Antelope Trinity for each control room.

To fill it all out, there's a massive HVAC room in the basement, the original reverb chamber, an instrument storeroom with a huge percussion collection, and all the VSL offices and sample edit suites.

BACK TO THE FUTURE

So what does the business look like for such a historic venue? Vienna has a long musical track record, and Synchron Stage has set out to provide the perfect conditions for their clients and musicians.

Since October 2015, they have been test-driving Stage A, recording scores with Sands and sampling instruments for the library and the VSL Multi-Impulse Response convolution engine.

Client feedback has been stunning. The recordings have all translated well to other mix stages, and when the "Jurassic Park: Main Theme" by John Williams was recorded to showcase the acoustics and the sound of Stage A, it turned out they needed 40 percent fewer performers than usual to create that massive sound.

With a pool of 250-plus musicians, several Audio for Games bookings, education collaborations with Sands and the Hollywood Music Workshop, and continuing VSL sampling, this new venture is well on its way to becoming a world-class facility.

As founder Tucmandl says in summation: "This summer will see the official launch of the studio, and where better to work than in this beautiful part of the world with great food, great wine and beer, fresh water straight from the Alps and a musical heritage to boot!"

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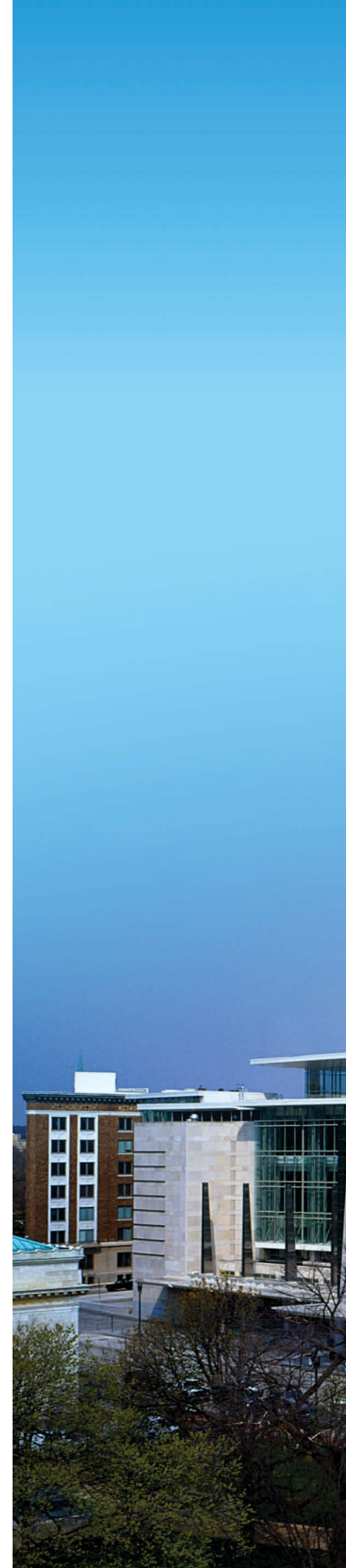
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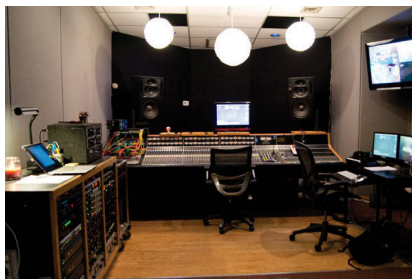
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Continued from p.51



OmniSound's Studio A

OMNISOUND

Kristian Bush was in the studio with engineer Tom Tapley...Parmalee was in the studio with engineer Jim Cooley...Larry Gatlin was in with engineer Jeff Thomas...Randy Houser with engineer Casey Wood...Brooke Eden with engineer Rory Rositas...

Chase Bryant with engineers Wood and Lee Unfried...Thompson Square with engineer Wood...Blake Shelton with engineer Scott Hendricks...Jana Kramer with engineer Scott Hendricks...Engineers Mike Poole, Gordon Hammond, and Howard Willing worked on the TV show *Nashville*...Engineers Sara Emily Parrish and Steve Gibson worked on the CMAs...OmniSound has also been a host studio for Melodyne for their software music capture for the past three years.

OCEAN WAY NASHVILLE

Cam was working with producer Tyler Johnson (Ed Sheeran, OneRepublic, Taylor Swift, Miley Cyrus, Mikky Ekko) on tracks for her latest album *Cam Untamed*, with Melissa Matthey engineering and Josh Ditty assisting. They used the Neve 8078 console...Keith Urban was in Studios A and B



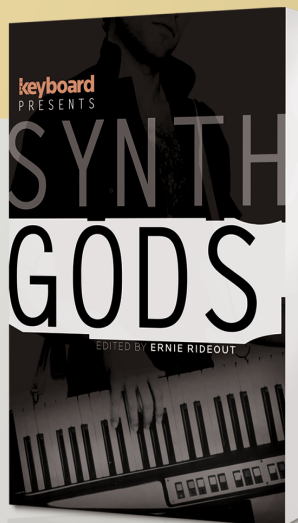
Photo: Ed Rode
Luke Bryan in Studio A at Ocean Way Nashville

with producer Dan Huff and engineers Joe Baldrige and Ditty (Urban also produced)...Composer Jack Wall conducted an orchestra for the score to *Call Of Duty Black Ops 3* (Electronic Arts), with Nick Spezia engineering and Jasper LeMaster assisting...Luke Bryan was in Studio A with producers Jeff and Jody Stevens and engineer Derek Bason...Blake Shelton worked on new material (Warner Bros.) in Studio A with producer Scott Hendricks and engineer Justin Niebank...Composer Bear McCreary and engineer Steve Kaplan worked on the score for the film *The Forest*...Composer Steve Jablonski, engineer Spezia and assistant engineer LeMaster worked on the score for the film *The Last Witch Hunter*...Composer John Debney and engineer Spezia worked on the score for the TV show *Texas Rising*...Florida Georgia Line worked with producer/engineer Joey Moi...Dierks Bentley worked on the album *Black* with producer Ross Copperman and engineer Allen Parker...Brett Eldridge worked on the album *Illinois* in Studio A with producer Copperman engineer Reid Shippen...Kaleo was with producer Jacquire King and engineer Lowell Reynolds. ■

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Five Things You Need to Know



By Kevin Becka

I regularly come across tech, music and general info that I immediately put in my “remember this” folder. Recently, I hit the Mother Lode and thought I’d pass it along. Number one of my Five Things You Need to Know should be filed under general interest and surprising facts. It is the incredible musical talent pool in Columbia, Tenn. What? I know! But you have to be around this area to understand the phenomenon. For example, if you drive 40 or more miles from downtown L.A. (except west), you are still in the sprawling metropolis with similar retail, housing, freeways, chain food and more. But in Tennessee, soon after you leave Nashville, Memphis or Chattanooga, you’re in a city with a population well under 100k, and this is where the magic happens. For instance, before they moved to Nashville and became Kings of Leon, the Followill brothers lived in Jackson, Tenn. (population 67,265), ace fiddler Andy Leftwich is from White House (10,752), 11-year-old prodigy Carson Peters is from Piney Top (7,229), and bluegrass singer/guitarist/mandolinist Sierra Hull is from Byrdstown (803). What’s in the water?

I learned all this from longtime friend and Columbia (35,558) resident Rick Clark, whom I met years ago when he was *Mix*’s Nashville editor, among other gigs. Rick has worked as an all-star music producer/supervisor for filmies Cameron Crowe, and Jason Reitman, the TV show *Hell On Wheels*, *Oxford American* magazine and too much more to mention. He introduced me to The Sprigs, comprising Matt Johnson and Chris Thomason, American Idol finalist Austin Jones, guitarist/writer Chris Weninegar, and an incredible tenor/guitarist Damien Boggs, all from Muletown. Yup, Columbia is the “Mule capital of the world,” along with being the birthplace of the 11th U.S. president, James Polk.

We worked two days straight with the boys from Columbia, and it was a treat. The level of writing, performance, musicianship and gentility is some of the best I’ve experienced. On October 1, if you’re in the area, you should check out the talent at the Muletown Musicfest on the square in Columbia.

Number Two on my list has nothing to do with music but everything to do with studio culture: coffee. I used to suck as a coffee maker, but not anymore. I’m the king of the French press, which is the perfect tool for small and fresh studio coffee runs. My “trainer” was Chris Weninegar, because four of the five Columbians either own, or work for, Muletown Coffee, a batch roasting house and shop that supplies local Nashville eateries like Puckett’s Grocery. This juxtaposition of

music and coffee chops is what I call “the bonus round.”

Chris says that coarse-ground—about the size of the font on a dime—is best for a French press. The proper water-to-coffee ratio according to the Specialty Coffee Association of America is roughly 18.5:1. Another way of saying that is roughly two tablespoons of coffee per six ounces of water, so for a 32-ounce French press you would need ten tablespoons of coffee (this is critical). Boil filtered water to between 195 and 205 degrees and put half into the French press to allow the coffee to bloom, or de-gas. After two minutes, add the rest of the water and stir three times. Finally, at four minutes, gently plunge the coffee, pour it into the cup and let it cool to about 140 to 150 degrees, the perfect drinking temp. Bon appétit, y’all.

Number Three is one of the best and most affordable data backup tools I’ve found. I use Google Drive and Apple’s iCloud Drive and am always frustrated by Google’s dual personality as a true second backup or synched cloud drive, and I can only fully share files with others who have a Gmail account. Backblaze offers unlimited, continuous backup that runs in the background for \$50 a year or \$95 for two years. I’ve been using it for a few months now, and it works great—invisible and elegant. You can choose what you want to back up on multiple drives, and compared to what I’d pay for 10TB at Google (\$99 a month), it’s a bargain. I’ll still use Google and iCloud for other gigs, but for my main confidence backup, I’m going with Backblaze.

Fourth on the list is a secure, online collaboration tool called Armored Info, a Texas-based active cyber defense company. It’s not just for music. AI explains: “The platform consists of The Vault, where files are securely stored, and collaboration between parties is handled, as well as the AI Marketplace, where content creators can then post their work for promotional use or monetary gain.” Read my column from *Mix*’s April issue about Pro Tools 12.5 if this doesn’t sound familiar. The AI platform can handle a number of file types, and invited members can be part of the project’s creation team. A Bronze level membership is free with 3GB of storage and 500MB file limit, Silver (\$9.99, 100GB/5GB), and Gold (\$39.99, 500GB/10GB).

Last on the list is my baby, the Foundation Series I’ve been working on for Hal Leonard Publishing via Pensado’s Strive umbrella. It is live now at Groove3.com. Check it out. The series is high-end production terms, techniques and gear aimed at novices and up, all centered around the workflow at Blackbird Studios in Nashville. Know a fifth grader who loves recording and music? It’s targeted, but not limited to a younger crowd. The videos pull back the curtain to see session production at Blackbird. They will love it. ■



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