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On the Cover: Producer/songwriter Greg Wells with artist/songwriter Ryan Tedder in Wells' musical-instrument-filled Santa Monica studio. Photo: Chris Schmitt.

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COMPILED BY THE MIX EDITORS

From the Editor

BOOKS, BOOKS AND BOOKS

I'm a reader. I always have been. My mom has maintained all these years that one day, when I was around three-and-a-half years old, she looked across the dining room table and realized that I had taught myself to read. I was her sixth of what would become 12 children, and she read every day to me, so the story is a bit of an exaggeration. Still, at 4 I was attempting crossword puzzles and playing my grandparents at Scrabble. Words were in my blood early, much the same as music fills some other young boy's bones. I love music—live, recorded or street-side spontaneous—and it's been a huge part of my life. But my first love was books.

When I was 11, my dad gave me Isaac Asimov's Foundation Trilogy, Ursula Leguin's Earthsea Trilogy, and most of the early John Le Carre and Robert Ludlum. There were bookshelves throughout our home, books on nightstands, everybody read. And it's been the same as my daughters grew up. I don't think I've ever boarded a plane or taken public transportation without a book in my bag. If I'm nearing the end of a title, I usually have at least one or two waiting in the wings. They are my escape, my meditation, and the roots of my never-ending education. I still read physical books; I look at enough screens all day long.

What does any of this have to do with audio? Nothing, really. It just all came together in my mind on a recent road trip from Oakland to Santa Barbara to Los Angeles for a couple of *Mix* cover stories with a couple of amazing songwriters. I began to think about the parallels between creating a song and writing verse or prose, the similarities evident in the craft and the output: In the end, there is a story.

The first stop was David Crosby's wood, stone and glass-filled ranch home, imbued with a peaceful and tranquil energy—and custom bookshelves everywhere, some floor-to-ceiling, others hugging the line below the windows. Fiction and nonfiction, art books and music biographies. The complete Wilber Smith (Crosby does have a fondness for sailing), the edgy sci-fi of Iain Banks, Lee Child, and countless others, across all genres. There were, of course, guitars everywhere, too, including two 1968 Martin D45s, cherry-picked off the line in the first year they were built since World War II.

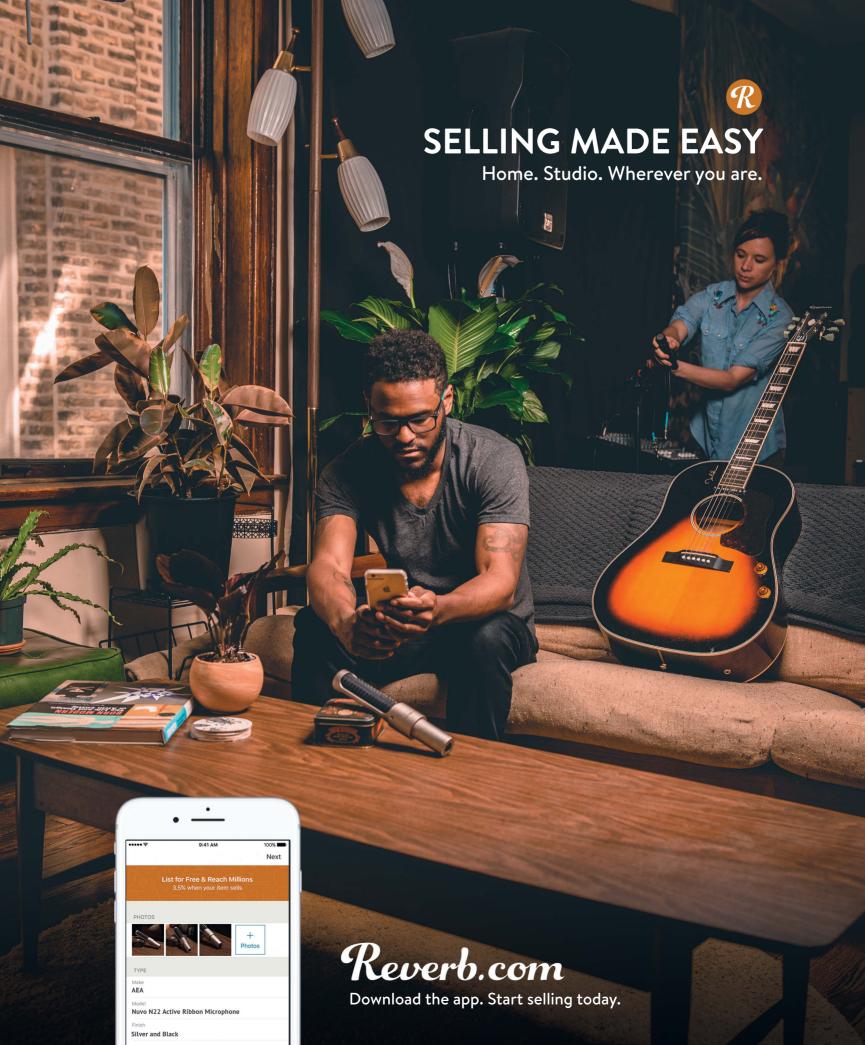
The second stop was at the studio and home of musician/producer/songwriter Greg Wells, pictured on this month's cover with artist/musician/songwriter Ryan Tedder, a frequent songwriting collaborator. That night, while Wells put his six-year-old daughter to bed after a long day at gymnastics camp, I did that annoying thing I do where I browse a new home and look at the bookshelves. The den, with its vintage pump organ centerpiece, was surrounded by built-in, rich-wood booshelves. In the sitting room, on the grand piano, were score sheets from the Royal Conservatory of Music next to a Calvin and Hobbes collection. On the shelves across the room, Jan Swafford's biography of Beethoven sat next to *The Complete Fawlty Towers* by John Cleese and Connie Booth. Nearby, Kurosawa's autobiography, *On the Road, The Collected Poems of W.B. Yeats.* It tells you something about a person.

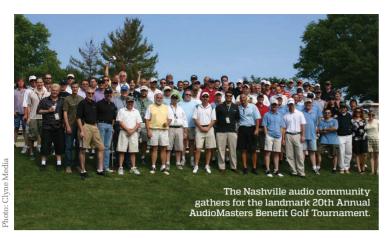
The next day, driving home on I-5, I thought back to what the great film editor/mixer Walter Murch told me in an interview more than a decade ago. Books, he said, are the one form of storytelling where the listener, not the creator, controls the pace of the experience—in a nonlinear fashion, moving backward and forward at will, across any length of time—and where each individual creates a unique visual world through their own imagination, rather than being presented with one. The analogies to music, to the experience of "feeling" a song, each individual unique, seemed to make perfect sense as I pulled back into the Bay Area.

So again, there is no real point here except that audio engineers, artists and songwriters are people, too, and their creative influences might come from a painting, the architecture of a downtown 1800s building, or the beauty of Zion National Park. You never know. For me, it's all of those and more. Books, too.

Tom Kenny Editor

Thomas aD kn





Nashville Preps for 20th Annual **Audio Masters Golf Tournament**

The Nashville professional audio community is getting ready for the landmark 20th annual Audio Masters Benefit Golf Tournament, held once again at the scenic Harpeth Hills Golf Course across two days, May 11-12, 2017.

Years ago, the Nashville Section of the Audio Engineering Society established the Nashville Engineer Relief Fund as a 503(c)2 nonprofit corporation, as a means to distribute funds to assist members of the greater Nashville audio community in times of personal or family crisis.

"We had no idea what we were doing when we created the Audio-Masters, which has actually proven a good thing," says NERF Secretary Frank Wells. "Our community rallying behind NERF has changed lives for the better part of two decades, and this incredibly unique tournament somehow keeps topping itself every year. The best thing we do as a community is funded by the premier event of the year—doing good and having fun, it doesn't get any better than that."

The event is produced by the Nashville AES Section and event coordinator George Jones along with his company, Premier Golf Services. 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," a studio community-focused day under the banner of perennial title sponsor Sweetwater Sound. Both tournament days include breakfast, open driving range, a four-person scramble, and awards receptions following the golf, along with an abundance of treats and beverages along the way.

While NERF's support is kept discreet and confidential, NERF's past assistance includes numerous examples of helping individuals maintain essential needs during times of temporary unemployment due to injury or illness, or when facing crushing short-term debt from deductibles and other expenses. NERF has also aided families affected by natural disaster and has helped with end-of-life expenses.

Confirmed sponsors include IBL Professional, Sweetwater, API, The Recording Academy, Clair, Echo Mountain, Clyne Media, AES, Genelec, Morris, Crown Seating, Iron Mountain, SSL and Audio-

The AudioMasters sells out nearly every year, so sign up now to make sure you're part of this year's fun. Visit www.theaudiomasters. org for more information and to sign up.

Mastering Engineer Tom Coune, 1954-2017

Tom Covne, a mainstay of the New York City mastering community for more than 40 years, has died from multiple myeloma. The Morris Township, N.J., resident was 62 years old.

While at Frankford/Wayne Mastering in the late 1970s, Coyne got his first big break on Kool & The Gang's "Ladies Night. He would go on to win six Grammy Awards and be nominated more than 30 times, his most recent two wins this past February for Adele's 25. Through the years, he also worked with stars such as Beyonce, Taylor Swift, The Weeknd, Lady Gaga and countless others. He was perhaps best known for his groundbreakingwork in the late 1980s and early 1990s, while at Hit Factory and Sterling Sound, ushering in the Golden Age of hip hop with artists such as A Tribe Called Quest, R. Kelly, Digable Planets, the Roots, Wu-Tang Clan and Erykah

One of his longtime colleagues and friends, Vlado Meller, wrote to Mix:

"I was extremely saddened to learn today about the passing of my friend Tom Coyne. Mastering is a pretty solitary career, but Tom was always kind and collaborative. In 1980, when I was working for CBS, a producer had sought me out to work on the next Grover Washington, Jr., record, but since CBS wouldn't work with outside artists, I was unable to work on it in a traditional manner. So during my lunch break one day, I went out and walked to Frankford/Wayne Mastering to see if there was any chance they'd let me use their studio so I could master the album as a freelance project. Sure enough, Tom was incredibly accommodating, showing me the way around the studio and letting me master the whole album there.

"The record ended up being Grover's hit Winelight featuring the smash single "Just the Two of Us," and it exploded, going on to win multiple Grammys. If not for Tom and his generosity, I'm not sure I would've been a part of that record. After that project, we remained close as we moved throughout different studios and projects, often going out to lunch when he was at the Hit Factory and I was at Sony. Tom was a brilliant engineer, respected peer, and a compassionate friend, and he will be sorely missed."

JBL Anniversary Correction

Dear Editor: You incorrectly state in your article in the April issue that the JBL 4310 monitor was developed for Capitol. It was actually developed at the request of my father, Bob Fine, for his studio, Fine Recording.

One detail in the Lansing Heritage posting is incorrect. My father actually had a Scully 280 8-track in Studio B (which was later replaced by a Scully 280 12-track). His new console, made by Bob Bloom (Audio Designs and Manufacturing) did not include a monitor-mix section, and my father was used to monitoring all tracks off the tape machine. In the 3-track world, it was fine to use Altec A7s (my father did not like or use Altec 604s). This obviously wouldn't work with eight tracks, and so my father reached out to JBL. The 4310 proved the right monitor for this use, but the Studio B console was eventually modified to include a monitor mixer. JBL, of course, made great success from the 4310 concept, launching the L100, the choice of dorm rooms and man-caves throughout the 1970s. —Tom Fine

LS50 Wireless Greatness, amplified.





SOUTHERN AVENUE

Roots, Soul, Rock and the Rebirth of Stax

By Sarah Jones

he story of Southern Avenue sounds a bit like a music industry fairy tale. In 2015, Ori Naftaly, a young Israeli guitarist on a pilgrimage to Memphis, forged a partnership with vocalist Tierinii Jackson and drummer Tikyra Jackson, sisters and musicians raised in the church tradition. Together with keyboardist and Stax Academy graduate Jeremy Powell and a jazz-inspired bassist, Daniel McKee, a band was formed, taking the city by storm with their energetic live shows and fresh take on Memphis blues.

Meanwhile, Concord Music Group president John Burk was hunting for a young local act for the revived Stax label. While working with Melissa Etheridge at Royal Studios, he connected with producer Kevin Houston, who had recently recorded an EP with Southern Avenue. Long story short, 18 months after forming, the quintet of twenty-somethings were signed to Stax; their self-titled album, released in February, debuted at Number One on the iTunes Blues chart.

Southern Avenue's modern sound melds gospel-infused R&B with a rootsy rock feel. The ten songs on the record—written mainly by Naftaly and Tierinii Jackson, with the exception of George Jackson's classic "Slipped, Tripped, and Fell in Love"—follow a timeline of the band's experiences, from "Eighty Miles from Memphis" and "Don't

Give Up," about Naftaly's struggle to fulfill his musical dreams, to the end of the journey, the final track "Peace Will Come."

Producer/engineer Houston, whose credits include Lucero and Patty Griffin, says he knew right away that he was onto something special. "They played me the songs, and I immediately heard what it needed to be like," he says. "The lead single, 'Don't Give Up,' when they started playing that to me, singing it, I heard the claps, and it was just so undeniable that it was powerful."

That fall, the band recorded a five-track EP in a few days at Memphis' Inside Sound, with the goal of generating interest at Memphis' 2016

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TIPS & TECHNIQUES



■ Bypass for Clarity
If your mix is starting to sound muddy, bypass all plug-ins on the stereo buss, or on auxiliary tracks receiving multiple instruments. You might discover you've overcooked these busses.

Bring Down the Reference

When comparing your mix to a professional mastered reference, bring down its level so that it reads as loud as your mix in the meters. You'll have a more accurate point of comparison.

Sidechain for Groove

With a compressor, try sidechaining your hi-hat to your snare, or the bass part to a kick drum. This can add bounce or groove to a track lacking either.

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International Blues Challenge, where the band placed in the finals. Within a few months, Southern Avenue was signed and headed to Zebra Ranch, built by legendary Memphis producer and artist Jim Dickinson in Coldwater, Miss., a rural hideaway 45 minutes south of Memphis. Housed in a converted barn adorned with musical relics and audio antiques, Zebra began as a family art project but has evolved over the years into a nontraditional studio space.

"Jim Dickinson always said that production in absentia was the highest form of the art," says Houston, who produced, engineered and mixed Southern Avenue. "He designed the studio, and you can't help but be affected by his presence there. I wouldn't say it's a convenient place, but it really helps build a team aspect because you're all out there in the middle of nowhere, and there's nothing to do but make a record."

"Going in there felt like going home," adds Naftaly. "It felt good to have the privacy and focus. And on the other hand, you have the sound and the acoustics, and the equipment and all of the memorabilia—the awards, the interviews, newspaper stories from 40 years ago. It's really inspiring, but not in a flashy way; in a real, raw kind of way."

The majority of the album was tracked live to Pro Tools. Houston supplemented the gear at Inside Sound and Zebra—including the latter's collection of Coles and RCA ribbon mics—with his own rig, which comprises API mic pre's, 550b and 550a EQs, some Telefunken V72s, and a Neumann U87



Kevin Houston, vocalist Tierinii Jackson and guitarist Ori Naftaly during mixing sessions at Music and Arts, Memphis.

that he sends through his custom JFL Audio MP F5 tube mic pre/compressor, designed by Frank Lacy in Oxford, Miss., and based loosely on the Universal Audio 176.

At both Inside Sound and Zebra, Houston set everyone up in the same space as much as possible, with vocalist Jackson in a separate room. Though there would be overdubs later, the key to the record, Houston figured, was centered around interfacing emotionally with her vocals.

Because they were recording to digital, Houston wanted to incorporate as many tubes in the signal chain as possible, choosing to send the lead vocal from a Telefunken AR-51 tube condenser, through his JFL Audio MP F5. "I tried a couple of different signal paths," he explains. "She's so dynamic that I wanted something that was going to smooth out her voice as much possible."

To record the first five tracks at Inside Sound, Naftaly's guitar amp was placed in an iso booth. Bass was taken direct and was re-amped later, using a Reamp V2 box into a classic 1970s Ampeg B15 amp, miked with an EV RE20.

Zebra Ranch doesn't have traditional iso booths; to control bleed Houston set Naftaly up in the bathroom. "If we knew we were going to make it live, we'd open up the doors and get a little more bleed, get a little more depth to a solo," he says. Guitar amps were close-miked with an SM57 and a Royer 121; to overdub solos, Houston put up a Coles 4038 as a distant room mic.

Most guitar tracks were recorded live; Naftaly says he never wants to put

Primacoustic... better design, better



"The ease of install really allowed us to experiment with placement and with the quality of the treatments, we achieved the sonic balance we were looking for!"

~ Tommy Lee

Founding member - Mötley Crüe.



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~ David Rideau

Engineer/producer - Janet Jackson, Sting, TLC, George Duke and Jennifer Lopez.



"The Primacoustic is up and kicking butt at my new studio in Santa Monica. I love the way the control and tracking rooms sound now... and so does everyone that records here!"

~ Butch Walker

Engineer/Producer - Avril Lavigne, Fall Out Boy, Pink, Sevendust, Hot Hot Heat, Simple Plan, The Donnas.

"I love the way the control and tracking rooms sound now...
and so does everyone that records here!" ~ Butch Walker

anything on a record that he can't re-create onstage. "In a live show, I play one guitar; I change my pickups and I do whatever I do with my sound, but it's still a very live, rock 'n' roll kind of sound, which is what I wanted to do on the record." He rotated six guitars in the studio, including Fenders from a custom shop in Memphis, and played through Fender or Vox amps.

Guest artist Luther Dickinson added slide to a few tracks, at Zebra: "Slide guitar overdubs were on an acoustic guitar with an old DeArmond pickup in the soundhole through a Fuchs boutique amplifier," says Houston. "He selected the acoustic to allow him to play with the amount of feedback/ sustain so as to make the slide guitar sing." The amp was close-miked with a Sennheiser 421 and a Royer 121.

Horns add an iconic Memphis feel. On the track "What Did I Do?" recorded at Inside Sound, Houston worked around budget limitations by playing sax himself and bringing in a friend, Suavo Jones, on trombone. Those horns were recorded separately: Houston with his U87 and Jones with a Coles.

At Zebra, Houston brought in local heavyweights Art Edmaiston on sax and the Bo Keys' Mark Franklin on trumpet, and employed a recording technique he picked up from Royal's Boo Mitchell: "I make the blend on one microphone; we used an AKG 414. That's what they do at Royal Studios. In this instance, we had two horn players, but they'll get as many as four players around that one microphone and just move everybody around until they blend just right. Those guys have a great system where they'll do trumpet and tenor on a pass, and then switch horns and do flugelhorns and bari sax on another pass. That's how they get the big stack."

Scheduling challenges meant some keyboard parts were recorded live and others were overdubbed. On the EP tracks, keyboards were recorded direct on a Yamaha Motif; at Zebra, Houston rented an organ. "We put the Leslie in it and set it in the entry foyer coming into the studio to isolate it a bit." Later, when Houston remixed some of the EP tracks, he ended up re-amping those keyboard parts through a Leslie Combo. Drum miking varied on the two sessions: On the EP, mics included DII2 on kick, SM57 on top and bottom snare, Sennheiser 441 on hi-hat and 421 on toms, with two AKG 414s as stereo overheads and a Coles 4038 mono room mic.

The mic breakdown at Zebra featured an EV ND 868 on inside kick, Yamaha sub kick on outside kick, SM 57 on top and bottom snare, 421 on toms, RCA 77DX for mono room and two Coles 4038 for stereo room tracks. "Once we had a budget through Stax, I had master drum tech Robert Hall rent us his amazing DW kit and lots of his choice snares and cymbals," adds Houston.

Houston mixed the record at Memphis' Music and Arts Studio on its API Vision console. The ten tracks sound cohesive despite being recorded in two facilities, months apart—partly because he used his own API line mixer and outboard gear on all of the sessions. Mastering was handled by Paul Blakemore at CMG, with vinyl cut by Jeff Powell at Sam Phillips Recording.

Houston says he wept when he put his test copy on his turntable. "I just couldn't believe it sounded so good; I couldn't believe it was going to be on Stax. It's just a dream come true. This record encompasses blues, gospel, soul, R&B—and that's what Memphis music is to me, a combination of all those things to combine something to make it new and fresh."

performance, amazing results!



"When building The Leopards Nest studio, we tested a number of different acoustic treatments and chose Primacoustic. It was easy... Primacoustic did the best job and my studio sounds amazing!" ~ Jason Hook - Five Finger Death Punch.

"Not only does my room sound amazing, it's also really beautiful!!!"

~ John Rzeznik



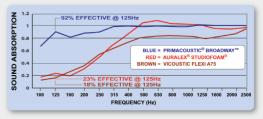
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PRIMACOUSTIC



MOON DUO

Keyboardist Sanae Yamada and Guitarist Ripley Johnson are Moon Duo, electronic music collaborators whose latest collections. Occult Architecture Vol. I and Vol. II, are meant to trace a musical path through the seasons. By turns, brighter or darker textures are layered over a central

groove, expressing the idea of a natural landscape, and the changing "architectural" facades created by temporal shifts.

The musicians recorded foundational elements with engineer Jason Powers at Type Foundry Studios (Portland, Ore.), with their touring drummer John Jeffrey playing electronic and acoustic drum parts. "They knew the structures they wanted, but with me a lot of it was getting the groove down," Powers says. "There are parts that switch on top of that, but each song is essentially one repetitive groove and beat.

"Some songs were done with them as a band, or John would play to a click for a while, and then we would find a nice eight-bar segment and make a loop of the drums," he continues. "Some of the songs had electronic drums and others had a live kit, but he had triggers on his kit, so he could trigger samples as well."

Powers understood that most, if not all, of the guitar tracks from his sessions would be replaced, as well as any guide vocals, but some keyboards (taken direct) would be kept, and the drum parts were meant to be keepers. "Originally, I was thinking I would do a mono overhead, so I had a Coles 4038 ribbon over the kit, but after a day or so I added an



old Neumann CMV 563—a tube mic from the '50s—over the drummer's shoulder," Powers says.

Close mics included an SM7 on snare. "I remove the populard on the SM7 and it goes into an API 512 preamp," he says. "The SM7 gives you a solid snare sound and has good hi-hat rejection; hi-hat bleeding into the snare mic is a common ailment."

Moon Duo put in two six-day sessions at Type Foundry before taking their basic rhythms home to add guitars, more keyboards and final vocals. Both volumes were mixed by longtime collaborator Jonas Verwijnen: Vol. I in Berlin, and Vol. 2 in Portland at Josh Powell's studio, The Map Room.

"I would say that when they left my studio, they were still forming the songs in a way," Powers says. "I didn't even know at first that there were going to be two records. They were figuring out how it was going to go, and ultimately they settled on the idea that there would be one record with a darker groove, and the other one would be a little lighter."

-Barbara Schultz



COOL SPIN: JOE GODDARD ELECTRIC LINES

Joe Goddard is possibly the most prolific of Hot Chip's members. Electric Lines is Goddard's second solo album, following 2009's Harvest Festival on his

own Greco-Roman label. He's also worked on numerous other productions with Raf Rundell as Two Bears, as well as on his own, not to mention countless popular remixes. Electric Lines gets its fuel from a Eurorack synthesizer, propelling its dancefloor-lite sounds that stay far removed from big builds and drops.

Goddard hosts a slew of guest vocalists on these electronic-pop creations and utilizes instantly recognizable samples from classic favorites. The Emotions' "I Don't Want to Lose Your Love" on his song "Lose Your Love," Brainstorm's "We're on Our Way Home" on "Home," and Celada's "Music Is the Answer" on the slow-grooving song of the same name. These samples ground Goddard's emotive, modern interpretations. In contrast, the instrumental "Lasers" is tethered by a formidable, rumbling bass line that's capable of shaking any dance floor. Goddard himself sings on a few of the songs, giving them a tender, ballad-like quality. Electric Lines slots tidily in with other



thought- and emotion-provoking dance-based album; think Jamie xx's In Colour.

Producer: Joe Goddard/Joe's Basement. Mixers: Goddard, David Kennedy, David Wrench, Alex Tepper, Eric Kupper, Oliver Wright, Richard Norris, Steve Dubs, Tom Elmhirst. Mastering: Matt Colton, Alchemy (London, UK).

-Lily Moayeri

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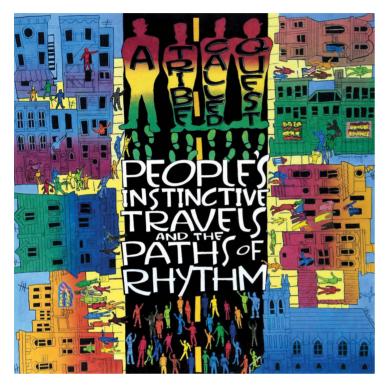
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Classic Tracks

By Sarah Jones



"CAN I KICK IT?"

A Tribe Called Quest

ou know it the moment it starts: that unmistakable bass line, Lou Reed's "Walk on the Wild Side" recast as the slinky pulse of a head-bobbing hip hop classic. Then, that greasy, jazzy drum sample lays down the groove. Things settle in for a few bars, and Q-Tip asks, in that buttery drawl, "Can I Kick lt?" Yes, you can.

Everyone's favorite hip hop anthem was the third single released off A Tribe Called Quest's debut album, *People's Instinctive Travels and the Paths of Rhythm*, released on Jive in 1990. The record, with its intricate collages of samples that drew from a wide palette of '70s jazz and rock, its youthful, exuberant energy, and its positive, Afrocentric message, helped lay the foundation for a new school of hip hop. It was innovative, soulful—a party record with a conscience.

The album was recorded in 1989 as hip hop was entering into its first Golden Age. Ali Shaheed Muhammad, Jarobi White, Malik "Phife Dawg" Taylor, and Kamaal "Q-Tip" Fareed had grown up in Queens and Brooklyn, listening to their parents' jazz records and the sounds of neighborhood DJs from their fire escapes. Their idols were LL Cool J and Run DMC.

As the hip hop sounds of the streets gravitated toward radio, the teenagers went crate digging after school at record stores in the Village, mining the dark, obscure corners of rock and jazz to build beats. They started

writing rhymes that captured the essence of growing up black teenage boys in '80s New York City. They made some demos, which caught the attention of Jive Records.

People's Instinctive Travels was recorded at Calliope Studios (and to some extent, Battery Studios) in New York, by a team of engineers that included Anthony Saunders, Shane Faber and Tim Latham. But it was producer/engineer Bob Power who ultimately forged an enduring creative partnership with Tribe, one that would continue though the completion of *People's Instinctive Travels* and subsequent albums.

Power, currently a professor at NYU's Clive Davis Institute, has long been recognized as a Grammy-winning producer/mixer who helped shape some of the most iconic albums in hip hop and R&B. But in 1989, he was transitioning from being an in-demand jingle writer, guitarist and arranger to full-time engineering, and he was working at Calliope.

"This was a really big time of learning for me as an engineer, and it was fascinating," Power says of his early days at Calliope, a low-budget studio in a loft on a gritty stretch of West 38th, near Eighth Avenue. "Even through I had scored TV for years and produced a lot of stuff, I was really happy at that point to be concentrating on engineering. Because we were one of cheapest studios in town, that's where musicians doing new, non-mainstream things would come."

The studio's accessibility and vibe attracted the Native Tongues collective, a group of local artists—including the Jungle Brothers, De La Soul, Queen Latifah and Black Sheep—who were pioneering the use of samples, and jazz- and rock-influenced beats in hip hop. The acts gravitated toward Power's creative energy and willingness to experiment in the studio. "They were good people, trying to do something a different way, and I found it fascinating," Power says.

Members of the collective could be found recording at Calliope while Tribe worked on *People's Instinctive Travels*. "It was an otherworldly place," Q-Tip told *Wax Poetics* in 2015. "I was 18 years old; I was a kid in a candy store. Those tools in the studio became extensions of my imagination and thoughts...The rest of the Native Tongues were there with us, and we made each other better. We were a family."

In the studio, Tribe were aiming to make new music out of the sounds they loved. "We were making do with what we had," Q-Tip says in a scene in Michael Rapaport's documentary *Beats, Rhymes & Life: The Travels of A Tribe Called Quest.* "So we take these turntables and they become our instruments... all we did was take all of those things that we were influenced by, and mix it together."

Although "Can I Kick It?" is a complex construction of samples, instrumentation, scratches and call-and-response rhymes from Q-Tip and Phife Dawg, three samples essentially form the spine of the song: The rhythm is built from a drum break and Hammond riff from Dr. Lonnie Smith's "Spinning Wheel," from the 1970 album *Drives*; there's a reverb-y guitar slide from Dr. Buzzard's Original Savannah Band's buoyant 1976 calypso-disco

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track "Sun Shower"; and there's Herbie Flowers' "Walk on the Wild Side" bass line—originally recorded by Ken Scott and doubled on a Fender electric bass and an acoustic double bass—which forms the melodic glue.

O-Tip and Muhammad reworked records, and Muhammad played live instruments and performed scratches. Meanwhile, Power was experimenting with early sampling technology, trying to stretch the limits.

"You have to remember how incredibly primitive MIDI and sampling technology were at that point," Power says, recalling the days of working on early Apple machines with 128k of memory. "Unless you lived through it, you have no idea. Just to run a sequencer, you had to pop in a floppy, boot up the operating system, take that floppy out, pop in another floppy with the software for sequencing and leave that in there for the whole time you were sequencing. I call it the Wild West—flip a bunch of DIP switches and see what happens. It's so easy now to open up the computer and just have everything spring to life."

Elements were locked to SMPTE timecode with a 12-bit E-mu SP12 sampling drum machine. Track slipping was still not available in software (Power believes he was still working with Notator/Creator on an Atari

1040 at that point), so in order to move sounds into the right places against the beat, they devised a genius workaround.

"We would run everything through a 100-millisecond delay, so everything that happened referenced to that timecode," Power explains. "The zero point, the center of the beat, was 100 milliseconds behind where it was supposed to be. And then if we wanted to move something forward or back in the feel of the song, we would change the delay that the timecode was going through to say, 50 milliseconds if we wanted to be ahead of the beat, or 120 milliseconds if we wanted to be more behind the beat.



"The guys would sequence stuff on the SP12, or I believe we were using Akai Sooos, and at that point, the sampling time was like three-quarters of a second, or a second-and-a-half; it was ridiculous," he continues. "And because of the short sampling time available, if there was a loop that was longer than, say, that second-and-a-half, we had to lay it down in pieces to different tracks on two-inch. Say it was a one-bar loop: You'd lay down the kick, the snare, you'd lay down into beat three, then you'd lay down beat three through beat four, and then work like hell to make sure they lined up and sounded good together."

Power spent a lot of time cleaning up samples, which he says he would never do today because he now understands, "The schmutz on the track, the stuff that's not supposed to be there, is really what gives the composite track its flavor." Back then, he would hone in on the most salient elements of every sample through EO and filtering.

"If it was a Rhodes part, I might filter it such that mostly what was left was midrange, which was where the Rhodes lives, so we didn't hear a lot of bass or kick drum, hi-hat, stuff like that," he says. If the sample had a lot of surface noise, he'd sometimes run bits through a piece of hi-fi gear called a Burwen Noise Eliminator.

For the MCs, Power tended to use C414s on vocals, and everything

was laid to Calliope's 3M M79 2-inch. "One MC would go in and lay down the rhymes, and the other guy would go in and lay down the rhymes," he recalls. "They didn't always walk into the studio having that together. A lot of the time it was like, 'Okay, let me just cycle the tape and leave the room for an hour while somebody writes their rhyme."

It's important to remember that before Tribe and their Native Tongues contemporaries came along, hip hop music was mostly built around simple, single-bar loops of standard R&B samples, laid over 808 beats. With People's Instinctive Travels, it was like they were creating a record and a new art form at the same time.

"This is a great example of technology informing art," says Power. "It sounds simple, and it sounds obvious, but the increase in sampling time that became available allowed people to make more and more elaborate constructions. So in a sense they weren't just deconstructing something, they were really reconstructing something in a way that could not and would not have been played by 'real' musicians or live musicians because all of this stuff came from different songs. And it came to this recombinant kind of groove that you never could have done in any other way.

> "Something to think about in terms of the brilliance of Ali Shaheed and Tip was that many times the samplers and drum machines that they had didn't have enough memory to hold all of the samples to construct a song," he adds. "So they would actually hear things in their head, and put it together in their head beforehand, which is amazing."

> People's Instinctive Travels met with critical success but was slow to attract mainstream audiences; it took six years to reach Gold. And due to licensing issues, Tribe has never received royalties from "Can I Kick It?" Lou Reed held on to the publishing rights, as Phife Dawg

explained to Rolling Stone on the 25th anniversary of the album. "I'm grateful that [the song] kicked in the door, but to be honest, that was the label's fault," he said. "They didn't clear the sample. And rightfully so—it's his art, it's his work. He could have easily said no. There could have easily been no 'Can I Kick It?' So you take the good with the bad. And the good is, we didn't get sued. We just didn't get nothing from it."

A Tribe Called Quest's studio partnership with Power continued for three more albums: the landmark The Low End Theory, which catapulted the band to legendary status; Midnight Maurauders; and Beats, Rhymes & Life. "He was the fifth member of A Tribe Called Quest," Phife Dawg told Wax Poetics in 2015, in one of his final interviews. "He knew what we wanted before we even told him... it was the easiest part of working on this album."

Nearly three decades later, People's Instinctive Travels still sounds fresh and relevant—a testament to Tribe's musicianship and honesty in their rhymes. "I remastered the record for the 25th anniversary release last year, and when I listened to the songs over and over again, I realized that I still really love all this stuff; it has a great life to it," says Power. "Anybody who makes records knows that that's kind of an 'X factor.' The magic doesn't always happen; we have enough technique to make it pretty good even if the magic doesn't happen, but there was certainly magic in those tracks. "



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JACKIE GREENE

The Sweetwater Spring Tour

By Tom Kenny

ackie Greene, a true American troubadour whom Bob Weir once dubbed the "cowboy poet," kicked off his monthlong Sweetwater Spring Tour with, appropriately, a six-night residency at the famed Sweetwater Music Hall in Mill Valley, Calif., just north of San Francisco. Each night, Greene played one of his albums as the first set, followed by a set of covers and rarely heard originals. *Mix* caught the March 30 show, where Greene performed *Giving Up the Ghost*.

The Jackie Greene Band—Greene (vocals, acoustic/electric guitar, Hammond B3, piano, harmonica), Nathan Dale (guitars, vocals), Jason Crosby (keys, fiddle) Fitz Harris (drums, vocals) and Jon Cornell (bass)—finished the springtime tour sprint with a performance at the Sweetwater 420 Festival in Atlanta, Ga., on April 20; they are scheduled to head back out in June for a club-theater-festival tour, with audiences ranging from 500 to 15,000.

To keep a consistent sound, with a dynamic band onstage, Greene put together a working production package—mics, backline, wireless, consoles, stageboxes, interfacing—that packs into a one-ramp-door, dual-axle trailer. For the past two-and-a-half years, tour manager/production manager/FOH engineer/monitor engineer Travis Hatem, out of Austin, Texas, has been relying on racks and stacks at the venue. He mixes from an iPad.

"We use two Behringer X32 rack systems, each paired with an S16 stagebox for a total of 32 inputs on each console to cover FOH and monitor mixes," Hatem explains. "I use two WiFi routers for remote iPad control. A total of 32 outputs are available between the two systems, and we max them out. I fabricated the analog split, which gives me fully independent control over



FOH and monitor mixes. There is no EQ, gain or compression sharing between the two systems."

The X₃₂ monitor setup includes three stereo and two mono IEM mixes, as well as four monitor wedge mixes for backup coverage. Outputs are also set for stereo side fills and a drum sub for the larger festival style stages or on fly-in dates. The band carries three channels of Sennheiser G₃ IEM with a Sennheiser antenna combiner and a standard paddle antenna. FOH, monitors and IEMs all fit nicely into a 24-space rolling rack.

"I'm a really big believer that less is more when it comes to live sound production," Hatem says, noting that he doesn't use outboard effects or plug-ins, and only minimal reverb for drums and a tap delay on Green's vocal. "Excellent 'housekeeping' is a must when setting up and organizing the console's inputs and outputs. I use all eight DCAs available for my FOH mix. Grouping down large channel counts allows me to maintain mix factors like making sure the lead vocal to snare relationship stays correct.

"Then by using the same mic, same preamp method, I can retain mix settings, then build on those settings from night to night," Hatem continues. "I am able to pick up my FOH mix where I finished the night before. But there is one issue to consider when mixing the same band digitally from night to night: If you become complacent and/or naive to the console settings, over time your mix could begin to sound dull and lifeless. Complacency behind the console can be a mix killer, especially at FOH. I typically try to revert back to a known, solid starting point every three or four shows."

"The overall dynamic range of this band is very large," he adds. "The most challenging factor I have is making sure that Jackie's softer music is above the club's noise floor, which is difficult in most places. The best thing an engineer can do to improve on his or her mix is to simply mute all the stage monitors and the FOH system and go stand by each instrument as the band is playing onstage. Just listen to the instrument in its natural environment before applying any electronics. A general rule I like to work towards is getting the musicians to sound good onstage by themselves. Having a solid 'stage sound is imperative to achieving a great FOH mix. Good stage, good mix!"



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LETTUCE BRINGS THE FUNK

With more than 20 years on the road and in the studio, Lettuce brought their horn and rhythm-loaded seven-piece funk to the Fox Theater in Oakland, Calif., in mid-March, plugging into the Meyer Sound house system and filling the stage with a groove-laced yet dynamic performance.

Supported on this club and theater tour by Music Matters Productions and Underlying Themes Productions, the band carried consoles, IEMs, Mics, DI and cabling, relying on house-supplied wedges, subs, stacks/racks, power and stands. Engineer Beau Williams Jr. mixed front of house on a DiGiCo SD8 console with Waves Multirack and Recording Rack (multitracked each night via an RME MADIface card); Andy Loy mixed monitors on a DiGiCo SD8-24, along with eight mixes of Shure PSM 1000 units and a mixture of wedge monitors, typically D&B M4 wedges with V subs.

"There are lots of instruments sharing the same frequency spectrum, and they can combat each other when all played at once, or played loud," Williams says. "My approach is more subtractive mixing. I ride the faders throughout the show and turn down anything combatting with anything else before I turn up what I can't hear. If a horn solo busts out, I ride the keys and guitar down before I jack the faders for the horns up.

"Mixing drums on this run has been a little different," he adds. "Adam, the drummer, has an assortment of 'toys' on his left side: octobans, bongos, pots and pans, a bucket, or whatever he found in the alley while we were loading in. There are a good amount of mics on the kit, but Adam was having a hard time with hearing certain things cut through in his



ears. So I ended up placing the 84s in an X/Y configuration over the drum kit, hard panning left and right, and delaying every other input, besides kick, to these overheads. The X/Y config mimics human hearing, and delaying the inputs accordingly helps combat phase cancellation between the mics. This helped a lot with the way Adam and the guys hear the kit on stage; it sounds more natural to him, and it definitely helps clear things up for me out front." —*Tom Kenny*





JAIN GOES SOLO IN THE STATES

Jeanne Galice, aka Jain, performed at The Crocodile in Seattle, Wash., in March 2017

French singer-songwriter Jeanne Galice, who performs using the stage name Jain, embarked on her first U.S. solo tour this spring, supported by sound companies Dushow Paris and Solotech.

Derya Uzun mixes front of house. Jain took the stage with a four piece band for her European dates, but she's touring solo in the Unit-

ed States, where Uzun is carrying only her Ableton Live setup, two Universal Audio Apollo 8 interfaces (along with a UAD Apollo 16) and a Radial SW8 8-channel audio switcher that allows for automatic switching between the main and spare computer. Additional must-have touring equipment includes a wireless vocal mic (Shure UR2 with DPA d:facto head), an Audix OM7 microphone for loop vocal, Radial J48 for acoustic guitar, two Neumann KM184 for ambience miking, and two Shure PSM1000 and Earsonics IEMs. The rest is provided by each venue.

"We need to travel light and always rely on the mixing desk provided by the venue," Uzun explains. "So, to have consistency of sound for each show, I bring my Apollo 16 with a lot of plug-ins to add space and warmth to my mix.

"I use EMT 250 and Lexicon 224 [reverbs] for vocals, EMT 140 plate on some drum stems, Eventide H910 as a vocal harmonizer, UA 610 Tube preamp for loop vocal, [Roland] RE201 tape echo, UAD Precision limiter, and I have an OTO BIM Delay, too." Uzun also mixes Jain's monitors from his FOH console, which, of course, varies from venue to venue.

"What's been challenging on this tour is to adapt the show each day and keep consistency for the sound with multiple different configurations," Uzun concludes.

"Jain's sound must be warm and powerful with a lot of dynamics," Uzun continues. "I also need to have her voice in the right place in the mix because that's the most important thing. So I deal with compression and EQ to have a good base shape for the music, then I work with a lot of effects during each song to make her voice shine. Jain is a fantastic performer with a great voice, amazing talent and generosity."

—Todd Berkowitz





On the Cover

by Tom Kenny

MUSICIAN-PRODUCER GREG WELLS

The Instrument-Riddled Magic of Rocket Carousel Studio



hen Greg Wells walks into his Rocket Carousel Studio, in a cinder-block structure on a nondescript street next to an auto mechanic off of downtown Culver City, Calif., he is always ready to record. Seated at the custom Undertone Audio console in front of his PMC monitoring system, he can turn left to peer into the Drum Room, with mics in place around his 1941 Slingerland Radio King kit with 26-inch kick, drum heads on the wall, a second set at the ready, cables everywhere. To his right is the Piano Room, with a Steinway grand, Hammond B3, church basement upright, tack-aided saloon-style upright, and a

melange of odd stringed instruments, guitars and amps. Vocal mics are always in place.

To his left, rhythm, to his right, melody. Even if it wasn't consciously planned that way, the layout makes a lot of sense from a left-brain/right-brain or left-hand/right-hand perspective. Or, perhaps more telling: Drums were Wells' first instrument; proficiency on piano led him to Los Angeles.

There is nothing fancy about Rocket Carousel, and there's nothing fancy about Wells. The lobby is simple and spare, the hallways cluttered and tight, instruments are everywhere. Swirling murals and Eastern tapestries cover the walls. Vintage gear and vintage mics, a hybrid studio with an emphasis on

the analog chain.

The ceilings are low, the vibe is warm. It's a working musician's laboratory and songwriter's living room all at once, set up to encourage collaboration. And it sounds fantastic. People who come in want to make music. Katy Perry has written and recorded there, Ryan Tedder, too. Rufus Wainwright. Keith Urban. So many others. Wells moved in 16 years ago, and it doesn't look like he's going anywhere soon.

It's a long way from his arrival in L.A. in 1990, a 21-year-old minister's son from Peterborough, Ontario, with a low-cost synthesizer, a Fostex 4-track, a bus pass and an apartment in Van Nuys. He was simply a player then, he says, and honestly not aware whether he was any good.

"My entire career has felt like I walked backwards into it," Wells says today from his living room, a baby grand behind him and a wall of books in front. "I have a real attraction to things that are foreign to me. I feel more at home. A lot of people write what they know, what they grew up with. I have run from what I knew, and I've run toward things that I didn't understand. Like a moth to a flame."

The circuitous path from young, hot L.A. session player to songwriter, multi-instrumentalist, programmer, engineer, producer on more than 85 million records sold was not typical. The odds against Wells even making it to L.A., never mind working with the likes of Adele, Pink, Katy Perry, One Republic and on and on, were about equivalent to his making it in the NBA. It helped that he had serious musical talent; learning how to collaborate would open up his career.

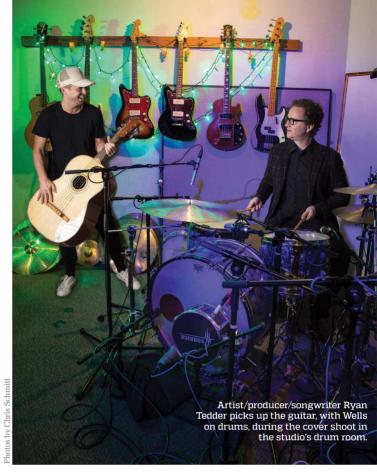
Much of Wells' childhood was spent in isolation, figuratively speaking, the realities of small-town Canada in the pre-cable, pre-Internet 1980s. His brain was wired for music, he had perfect pitch. He took piano lessons and taught himself drums and guitar. While other kids went to parties, he played music in his room. He joined every band in town, even sat in with a touring reggae act as a teen. He was a bit awkward, a bit of a nerd and loner. His best friend Derek was openly gay and into Andy Warhol and Laurie Anderson and John Waters. They sometimes got beat up together.

He had a good childhood, he says, no complaints. He was supported by parents, teachers and friends in his musical ambitions, but not really encouraged. Nobody helped to point the way. It was the times. All he knew was that he didn't really belong, and he wanted to make records.

"I can remember this one moment when I was about nine, riding in the station wagon on my way to skating lessons, and I was filled with a sense that I wasn't in the right place. I didn't know where to be, but something was not right," he says. "I was insatiably curious about how to make great records, be a great musician. I would listen to Trevor Horn records. Grace Jones Slave to the Rhythm I must have listened to 5,000 times. So musical, so full of surprises. How do you do that? It felt to me like the music I listened to came from Mars, and I had no way to get to Mars."

Humber College of Music in nearby Toronto, it turns out, provided the launchpad, and a few key people helped guide him out into the world. Kira Payne, a local sax player three years ahead of him, first told him he should





check it out. Brian Harris, with whom he studied during his senior year of high school, was head of the keyboard department and prodded him to audition. And professor Dave Stillwell, who became a lifetime friend, was the leader of the smoking band that kept him in school.

"Nobody had mentioned that Humber at the time was a hardcore bebop school," Wells explains. "And I didn't know a note of bebop or the standards. I got placed in an ensemble playing jazz standards and was not having a good time. I thought I'd made a mistake. So I went to Brian Harris and said I was thinking of leaving. He gave me a room number for a new band, an ensemble, and said to go there the next morning, say I sent you.

"It was like Earth, Wind & Fire and Tower of Power—horns, everything," he continues. "I played keyboards. They were so good, mostly third-year students. I had never played in a band like that before. Ensemble 2. Blue Jackets Required. I loved it.

Dave Stillwell was the teacher, and I'm still in touch with him weekly. He changed my life. I just played at his retirement party. The early stuff in our lives sticks with us. Humber gave me the awareness that I could play on the team, speak the language."

A former student of Stillwell's, Lou Pomanti—at that point and still the top studio keyboard player in Canada—came to an Ensemble 2 performance, and Wells met him post-show. Later he would invite Wells to his home, and recommend him for jingle sessions around Toronto.

"Lou Pomanti is the guy who said, 'Go to L.A. Do this! There's something bigger for you," Wells says. "This was the first time I had validation, and he lived inside the brass ring for every musician in Canada. He made me his understudy, and then pushed me out."

After two years at Humber, Wells applied for and received a grant with the



Canadian Council for the Arts to study piano for six months in Los Angeles with Clare Fischer, arranger for Prince, and Terry Trotter, master studio pianist and composer. He had not yet met them, and he didn't know a single person in town. These were the public transit days. The starving-with-no-money days.

"I would just show up at their houses, and there would be a piano in the living room," Wells recalls. "I can remember my first lesson with Terry Trotter. He was showing somebody out, so I sat down and just started playing around, excited to be sitting at a grand piano! After about three minutes, he looks at me and says, 'Why are you here?' I was confused. He said, 'You should be playing. I don't know what I'm going to teach you.' A renowned pianist telling me that I can swim in these currents... this stuff never happened to me. And Terry was a phenomenal teacher. He honed in on the detailed, finer points. 'Lose some of the dorky stuff. Don't be cute here.' Tiny points and so spot-on. And he was a master in all genres."

Wells' talent soon became apparent, and Fischer and Trotter began recommending him for sessions all around town, mostly jingles but some records He met Lee Sklar at a session and they bonded over an impromptu jam on the third of Gershwin's "Three Preludes." Sklar also began recommending him for sessions. Wells met a lot of people, asked questions, and actively soaked up the knowledge, styles and techniques of master recording engineers and producers. He still considered himself a player.

During these years of study and sessions, in his early 20s, Wells also played on three tours worldwide with kd lang, who calls him Multi to this day because he filled the role of three musicians, atop a riser with vibes, keyboard rigs, acoustic and electric guitars, odd percussion and accordion. For two of the tours he played drums. On one European tour, he subbed for Ben Mink and all his guitar parts, the many alternate tunings included.

"I learned so much from kd and Ben about getting out of the way and giving that amazing voice what it needs," he says. "That was probably the first lesson in learning to be a producer, though I didn't know it at the time. I was just soaking it up."

Life was good. His musical chops were being recognized, he was meeting some heroes, he was in the room, playing with the best and learning everything he could from top engineers, arrangers, composers and producers. Then at age 25, he was invited by Miles Copeland to a relatively exclusive songwriting academy at a castle in France, and his world opened up.

"I didn't consider myself a songwriter at all," he explains. "The first time I was there, I didn't have that good of a time. I was kind of shy, and I thought, 'What am I doing here?' Then I got asked to go back a second time and said no. Everybody told me that I was making a huge mistake, so I went and had the time of my life. I met so many talented people.

"I met E from the Eels, Pete Shelley of the Buzzcocks, Carole King, Paul Brady," he continues. "It was mind-blowing. Paul invited me to Ireland to hang out and write songs, and I went. It was watching masters of songwriting again and again and again. To be in the room with them. And I found that I brought music to the table. I learned that I was pretty crappy by myself and didn't really enjoy writing solo. But I was welcomed into the room with Carole King or Mark Hudson and found that I could bring their songs musically to life. If I have any talent whatsoever, it's being an accompanist. I'm only as good as whomever I'm working with."

Songwriting begat production, and though Wells often inhabits both roles in some form or another, he doesn't really distinguish between the two. He doesn't engage in traditional pre-production. Once the sound or tone of a song—a chord, a progression, sometimes a full melody—enters his head, it's as if he's already begun recording, mixing and mastering. It's just the way his brain works, he says, adding, "When it's all said and done, there's no delineation to me between getting to know people over a dinner and mastering their record.

"I talk about all this in a childlike way, but I do understand the minutiae and the detail. I'm a detail freak," he laughs. "I'm Captain Geek Out Maximus. I can tell you the cabling we're using, what the power supply is doing, how power is distributed. I make my own plug-ins, and I can't live without my analog chain, so my studio is something of a hybrid. I like that I can insert my 1950s RCA compressor on a lead vocal and it shows up in Pro Tools as an analog insert. "

The centerpiece of the control room is a custom 32-fader UnderTone Audio console, designed by friend Eric Valentine, to go with a couple of MPEO-I outboard EQs. Nearly every audio source runs through one or the other at some point. He monitors through his beloved PMC MB2S-XBD monitors, and he uses his own Waves plug-ins every day. He is an accomplished recording and mix engineer; he still considers himself primarily a player.

In 2006, his Humber mentor Dave Stillwell invited Wells back to his alma mater to address the student body in an all-day event, on stage. He was mortified, he said, thinking it would be a small group, not 350 people in a theater. After 15 minutes he began to ease into it, some of his father the minister came out, and he ended up enjoying himself. Ever since then he's sought opportunities to teach, and to give back.

He funds music scholarships, runs a Twitter competition to give away free drum sets, teaches when invited, serves on a board for a nonprofit that provides reading glasses to schoolchildren, and is in the middle of producing an album, gratis, from inside San Quentin Prison. This year, in partnership with Hal Leonard Publishing, Pensado's Place and their new Strive online curriculum, Wells will regularly share secrets from inside his studio.

"All I'm trying to do is be the person that I wish had existed for me when I was 20," he says. "I want to share this information I have, not hide it."

So, at this point of the story, if you are expecting to find Katy Perry's vocal chain or the compression setting on Adele, this isn't that story. This is the story of a boy from Canada who had music in his head and the dream of making records.

"My favorite qualities in art are being bold and brave with a sense of humor and an element of surprise," Wells says in summation. "For my birthday parties as a kid, I can remember I had the artsy gay kids and the tough jocks, the cool kids and the misfits. One year the coolest kid in the school was there. We never hung out, but there he was and it was fine. My discography looks like that birthday party. My friends look like that party. My life looks like that." ■





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COOL INTERCONNECTIVITY TOOLS

BY STROTHER BULLINS

Though not as sexy as gleaming microphones, boutique preamplifiers or the latest studio monitors, our industry boasts a massive wave of new components in the pro audio category of Interconnects, which includes cables, connectors and DI products.

From high-end cables and new connectivity devices from manufacturers like Neutrik; to A/D dongle-type products from Switchcraft; to solid core, world-class Swiss cables from VOVOX; savvy audio professionals know that when it comes to signal flow, it can sometimes be the little things that matter.

PART I: CONNECTORS

Perhaps **Amphenol** is a less-recognized brand in connectivity for sound engineers, especially compared to pro audio industry stalwart Neutrik. Yet Amphenol connectors are found across the board in pro audio products, including, for example, within the two superb bus-powered USB 2-channel preamplifiers currently sitting on my desktop; both the Focusrite Scarlett 2i2 and Tascam iXR boast dual-Amphenol combo XLR/TRS on their front panels.



Neutrik is our industry's de facto leader in connectivity, whether by sheer number of patented high-quality audio connector types, proliferation in the field or both. That said, Neutrik's most exciting XLR audio product is arguably its low-latency Xirium Pro line, built upon the company's DiWA (Digital Wireless Audio)

technology. Offering compression-free and FCC license-free wireless transmission of audio within the 5GHz band, Xirium Pro's 20 to 20k Hz audio transmission system provides latency equal to 3 milliseconds, regardless of number of devices used. A variety of analog/XLR and digital AES/EBU and Dante input and output models are available.

Since 1989, Utah-based **Rolls Corporation** has offered a wide range of pro and consumer audio interconnects, as well as processors, amps, mixers and more. Most notably, the large number of products in its Accessory line allows customers to pair almost any sound source to another input. The products are affordably priced and well made, too.



Best known for its connector lines, **Switchcraft** offers other modern connectivity solutions such as its AudioStix DI product line, ideal for audio environments that need new signal distribution forms on a budget. Specifically, Switchcraft's 318BT is the

world's first phantom-powered Bluetooth 4.0 audio receiver Dl. Featuring a Switchcraft balanced XLR connector and powered via standard 48V phantom power, the 318BT wirelessly transmits any Bluetooth audio source (via 2,402-2,480 MHz frequencies) up to 50 feet away (obstructed indoor) or 100 feet (unobstructed line of sight).

With available bulk and prewired cable and connectors of almost every kind, plus tons of "black box" interconnect products, New York-based **Whirlwind** has been in business for more than 40 years, providing U.S.-built networking solutions for a wide range of end-users. Most recently, Whirlwind has launched a fiber-optic department and builds custom signal and power systems for major clients worldwide.

PART II: CABLES



Based in Buena Park, Calif., Hosa Technology specializes in interconnects between musical instruments and pro audio devices, yet offers a bevy of new and useful tools that blur the

lines between consumer and pro audio applications. Case in point is Hosa's new Drive, a Bluetooth 3.0 audio receiver easily paired with any audio source, and featuring built-in track buttons for control at the playback system and 3.5 mm TRS audio output and a USB Mini-B charging port.

According to **Mogami** promotional materials, "every foot of Mogami cable is made in Nagano, Japan, under the direct supervision of the company founder, who continues to work every day." It's no wonder that virtually all pro-grade analog signal infrastructures have walls filled with Mogami, available in single-channel cables and 2- to 48-channel snakes, and more. The company offers cabling in Silver, Gold and Platinum delineations (in name, not materials).

First known in consumer audio markets, **Monster Cable** was founded by Noel Lee in 1979, making and successfully marketing multiwire speaker cable to audiophile-types. Years down the road, Monster dropped the "cable" from its moniker and ventured into headphone, speaker, power conditioning, portable audio, and home theater, among other markets. Today, pro audio types enjoy high-quality Monster interconnects under its Pro Musician category, featuring instrument, microphone and speaker cables, as well as various splitters and adapters.

Michigan-based **Pro Co** specializes in building audio interface products from cables to high channel-count analog and digital snakes, IEM controllers and various distribution systems. Bulk connectors, wire and other component-level tools are offered, too. Notably, Pro Co builds custom I/O panels to fit a wide range of needs, from broadcasting to studio and live sound, to comprehensive A/V systems.

Van Damme cable, manufactured by the UK's VDC Trading, is now

distributed in the U.S. by Fingerprint Audio, which will carry the entire Van Damme line featuring audio, fiber, data and video cables in bulk, manufactured and packaged cable packages. Using its Van Damme products, VDC Trading has created comprehensive cabling infrastructures for such varied clients as Abbey Road Studios, Coldplay, Muse, X-Factor, Wimbledon, Westfield Shopping Centers, Sky Network, CNN and others.



I first heard of **VOVOX** several years ago when the company's distributor, Audio Plus, sent over a few microphone and instrument cables for evaluation from both their "sonorous" and "link" product lines.

(Over)built to last, these VOVOX cables are the best and most durable I've ever used. Hand-assembled in Switzerland, the sonorus direct S non-shielded balanced cable, for example, boasts a single solid-core pure copper conductor, a natural fiber netting surround per conductor wire and much more.

PART III: CONNECTIVITY AND PREMIUM DI

Alto Professional's Stealth Wireless eliminates the need for cable between any traditional sound source and powered speaker, opening an affordable array of placement options in varied live sound environments. A simple UHF-based way to bypass cables between a mixer and loudspeakers, the Stealth Wireless package consists of one transmitter and two receivers, with three power adapters (12V DC, 300 mA) for each, plus mounting accessories: two M10 screws (for mounting Receivers to fly points on powered speakers) or "hook and loop" Velcro-style strips (for mounting receivers on virtually any surface). The Stealth's transmitter is switchable between mono and stereo, sending one or two channels of audio to every receiver in range (reportedly up to 200 feet away) and on the same channel (one of 16 UHF channels).

Several years ago, I organized a multiproduct evaluation focused on direct input boxes with the help of recording engineer Rob Tavaglione and technical assistance from former Pro Sound News editor Frank Wells. The following two DIs were standouts for several good reasons:



According to Rob, the AR-133 from BSS, a Harman company, provides fantastic bass response characteristics that were "bigger than life, and a fullness that would helpful with troublesome [sound

sources] like ply-top acoustic guitars and lightweight, anemic bass guitars." Meanwhile, the legendary Type 85 DI from Countryman justified itself with its "time-proven rugged design, wide frequency response and good headroom... with slightly forward midrange response and comparably lean bottom.'



Eventide's MixingLink is a clever little (4.8x3.95x2.15-inch) creative audio production tool in the form of a stompbox. It features a high-quality microphone preamp with phantom power and 65 dB of gain, plus an effects loop, headphone output, and various signal combination parameters.

Grace Design's Felix is a 2-channel acoustic instrument "preamp/ blender" housed in a floor unit with primary controls located on the top, and I/O on the rear panel. Each Felix channel includes an independent EQ section and three footswitches for mix, boost and mute/tune functions. Felix's rear panel includes a Grace m101 style mic preamp input on an XLR female connector, and two instrument inputs on 1/4-inch jacks. Four 1/4-inch jacks provide access to a tuner output, aux footswitch input, dedicated amp output and effects insert.

Along with all kinds of creative tools for recording production, Jonathan Little of Little Labs makes some of the most flexible DI and connectivity devices in the biz. A great example of Little Labs ingenuity is the PCP Instrument Distro, a 1-in/3-out guitar splitter featuring transformer-isolated, guitar level/impedance outputs with phase reverse, ground lift and level adjust on each output, designed for guitar re-amping. Includes an "audiophile"-grade DI and guitar cable line driver.



Radial Engineering arguably has more pro-grade I/O, analog connectivity and routing/snake options than any manufacturer in the market, seemingly offering the precise tool for any need, environment or venue. An ideal example of their I/O tools is the relatively new Di-NET DAN-TX stereo direct box, with

1/4-inch, RCA and stereo 3.5mm input jacks, allowing connectivity between instruments or line level sources, and networked audio systems using the Dante protocol. DAN-TX operates with a 24-bit/96 kHz A-D converter; its local 3.5mm headphone output allows for simple signal monitoring.

RapcoHorizon builds a variety of useful interfacing tools, including its neat little iBLOX Series, which allows musicians to use their favorite iOS device-based instrument amplifier emulation easily during performances. Features include a 2-foot lead with 1/4-inch right angle plugs for instrument input, belt/instrument strap clip, 6-foot iPhone interface cable, black powder-coated aluminum chassis for durability, and high-quality, hand-soldered connectors. Headphones or IEMs plug directly into iBLOX.



According to my frequent review collaborator, Nashville-based recording engineer Russ Long, Rupert Neve Designs' RNDI is a fabulous modern active DI, featuring a Class A discrete FET amp circuit that notably adds flattering

harmonic content. "It really shines on bass guitar," he explains, "where it complements the bass' midrange tone, making it practically jump out of the mix while the bottom-end retains the smooth, rich fullness of a completely transparent DI." The RNDI also features an LED current consumption meter with ground lift and speaker/instrument switches.

MIX REGIONAL: NASHVILLE



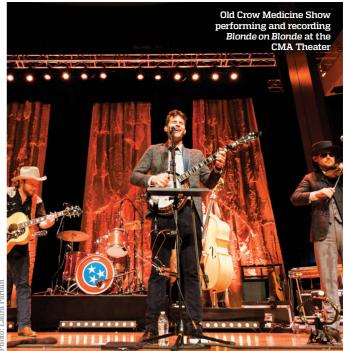
SUNNY SWEENEY AT SOUND EMPORIUM AND DECIBEL

Dave Brainard produced singer/songwriter Sunny Sweeney's latest Thirty Tigers release, *Trophy*, in his deciBel studio and at Sound Emporium. It's a clever, lovely, well-crafted collection of story songs, realized by Sweeney's beautiful voice and force of personality.

"My process starts with pre-production, Brainard says. "We got together in my studio, where I have a couple of booths and control rooms, and we cut acoustic tracks—sketching out sounds and a roadmap for the album."

He and engineer Jordan Rigby then captured drums, bass and piano in the larger commercial facility. "On most of the records I do, I use the CLASP system, going to analog tape," says Brainard. "So there are a couple of places I love to go to because of the tape machines; Sound Emporium Studio A has a great Studer [A827], and I love that room because it's a big open space, but it's not very ambient. You can deaden the drums a little bit, and get a little more of a tape sound—a vintage, no-room, dry type of thing."

Overdubs, including Sweeney's vocals, were tracked in deciBel. Funny but not joking, Brainard says, "Sunny's vocal chain starts with great songs, a great voice, a glass of wine, an Audio-Technica 4050, and then into an API 512 into an LA2A, and then it would go to my Studer A807 machine. To me, that's where the magic happens with a singer like Sunny, because she really leans into it. The tape is that final piece."



OLD CROW MEDICINE SHOW REMAKES BLONDE ON BLONDE

Old Crow Medicine Show has covered Dylan before. Their version of "Wagon Wheel" was a breakthrough hit in 2004, and they've included Dylan songs on more recent albums. But it must have taken exceptional bravery and vision to remake *Blonde on Blonde*—in front of a live audience in the 800-seat CMA Theater at the Country Music Hall of Fame.

"We had no plans of recording or filming the concerts," explains Norm Parenteau, the band's manager and executive producer of a DVD that documents the performances. "I attended the rehearsal at the CMA Theater three days before the show and realized it was going to be something special. I knew we had to capture it, so I hired Lee Tucker to put a film crew together and asked our sound guys [front-of-house mixer/recording engineer Chris Serino and monitor engineer Pete Parenteau] to rent recording equipment."

Serino captured the sessions to Pro Tools. His input list on the dates included DPA 4099s on fiddles, Shure Beta 98s on banjos, and SM58s on vocals. Drums were recorded with a Shure Beta 91 inside the kick and Audix D6 outside, SM57s on snare top and bottom, D4s on toms, Shure KSM137 on hi-hat, and AKG C414s as overheads.

Old Crow's version of *Blonde on Blonde*—recorded by Dylan in Columbia Studios in New York and Nashville in 1966—turns the folk-rock masterpiece into a high-test bluegrass romp, similar to the other borderline punk albums they've made with engineer Ryan Mall and producer Ted Hutt, the team that mixed the band's new version in Kingsize Soundlabs (L.A.).

"Having worked on a couple of records with them and knowing their affinity for Bob Dylan, it felt like, if there's a band that could pull that off and do it in its own way, it would be Old Crow," says Hutt. "They completely put their own spin on it."

Buddy Guy with producer/drummer Tom Hambridge

BUDDY GUY AT BLACKBIRD

Producer Tom Hambridge worked with the great Buddy Guy in Blackbird Studios with engineer Ducky Carlisle and assistant Sean Badum. Guy's vocal chain included a Neumann U47, Neve 1073 preamp and a TubeTech CL-1B compressor.

"I like to record live with Buddy and a full band on the floor playing together," Hambridge says. "I play drums, and Buddy and I set up facing each other. We had Buddy playing through three amps: a Dumble Head into a '70s Marshall 4×12 cabinet. We also used a modified Tweed Fender Deluxe and a Fender Tweed 4×10 Bassman."

SESSIONS





Story of the Year



Engineer Bryan Blumer has been working in Skyway for



Chief engineer Iim Demain

NASHVILLE TRAX

At Nashville Trax, Aaron McDaris (Rhonda Vincent and The Rage) played banjo on a song for Mike Anderson and the Mountainview Ramblers' album with Bill Watson producing; the banjo is one that was played by Sonny Osbourne on the original recording of "Rocky Top." And Rascal Flatts drummer Jim Riley performed on the upcoming album by The Swansons, who worked with Watson as producer.

OMNISOUND

OMNIsound Studios recently added new equipment from Manley, Burl Audio, Universal Audio and others, and upgraded all of the studios to Avid HDX cards with Avid HD I/O. In the past year, the facility has hosted artists including Alison Krauss and Union Station, Tommy Emmanuel with Jason Isbell, New Found Glory, John Anderson, and Story of the Year.

SKYWAY STUDIOS

Skyway provides broadcast and production services, as well as rehearsal space, in its 18,000-square-foot facility. In the month before this issue went to press, visitors to Skyway included Garth Brooks, Randy Travis, Faith Hill, Tim McGraw, Brad Paisley, Easten Corbin, Hunter Hayes and Carrie Underwood.

YESMASTER ADDS PRISM, DANGEROUS

The newest additions to the analog mastering chain at Yes Master Studios are the Prism Sound Mastering EQ and the Dangerous Master Section. Of late, these pieces have been put to use on projects by Jimmy Buffett, Chris Young and Ronnie Milsap.



Justin Tockett (right) with baseball great/recording artist Barry Zito

BACK IN THE HOUSE OF DAVID

House of David Studios closed its doors for three years earlier in the decade, but the studio has been busy since re-opening in 2015. Recent sessions have included Grammy-winning producer Dave Cobb with Rival Sons and Amanda Shires, and producer/ engineer Justin Tockett working with Cy Young Award-winning pitcher Barry Zito to record his first album since retiring from baseball. The studio has also hosted video projects, including the Web series The Producers Room with Dave Tough, featuring interviews with great Nashville producers such as Tony Brown, Dan Huff, Josh Leo and others.

"Currently, we are working on making custom IRs [impulse responses] for a company called Two Notes," says studio manager Mike Lewis. "Brandon Henegar is the house engineer here and is an amazing guitar player. We have been getting a lot of work from companies wanting him to review their guitar pedals and amps."



JASON ISBELL DIRECT-TO-DISC

Record Store Day EP Captures Performance at Welcome to 1979

BY RANDY FOX



n a cool November evening in Nashville, 60 audio engineers, musicians and other recording industry professionals gather in the second-floor control room of Welcome to 1979 Studios. It is the first evening of the studio's annual Recording Summit, a conclave of recording enthusiasts filled with panel discussions, demonstrations and the weekend's centerpiece event—a direct-to-disc recording session.

As Welcome to 1979 owner/recording engineer Chris Mara makes minor adjustments to the board, he watches the video screens on the wall in front of him. One displays a band warming up in the main tracking studio. Several of the attendees study the musicians, looking for a hint of who the surprise artist will be. On the screen displaying the interior of the vocal booth, a figure steps into view; Grammy Award-winning Americana singer-songwriter Jason Isbell straps on his guitar.

Downstairs from the control room is the vinyl-mastering room where engineer Cameron Henry is checking the settings on the vintage 1973 Neumann VMS 70 cutting lathe. Henry, who has been the in-house vinyl-mastering engineer for Welcome to 1979 since 2013, has cut masters for hundreds of LPs, but this evening's event is his twelfth direct-to-disc session.

"On direct-to-disc sessions, my mastering is like a performance in itself," Henry says. "I'm often hunched over the microscope, playing the wave, so to speak. A lot of problems can be avoided by good planning, but some of it is guesswork. You don't have the luxury of knowing the exact running time of each side of the record. The band will tell me how many songs they have and how long each song is. I add 20 percent on to that. Chris and I also have a phone to communicate, so when I start getting close to the end of lacquer, I can get on the horn and say we need to do a fade out, but you always want to avoid that if possible."

Down the hall from the mastering room, Isbell plays the opening lick of the Rolling Stones' "Can't You Hear Me Knocking." The building crackles with the sound of rock 'n' roll for the next six minutes, but as Isbell nears the end of the song, he suddenly stops the take.

"Let's start that again. We don't want to get too groovy or have too much fun," Isbell jokes. Mara tells him to hang on, and Henry scrambles to remove the lacquer and loads a fresh, unmarked platter on the lathe.

With a fresh lacquer spinning, Henry indicates that he's ready and Mara signals to start Take 2. Isbell and band quickly find a groove. They nail "Knocking" and then pause for just a moment before launching into John Prine's "Storm Windows." Finishing that number, Isbell makes a quick guitar change, and then closes out Side A with the Candi Staton Southern soul classic "Heart on a String."

In the mastering room, Henry quickly inspects the completed lacquer and replaces it with a fresh one. Upstairs in the control room, Mara checks the settings on his console and prepares for the recording of Side B. "For direct-to-disc sessions, I never fade down between songs," Mara says. "The buzz of amps in the room, the chatter between the musicians all that goes down if I fade, and it takes all the life out of the sound."

Henry signals from the cutting room that Side B is ready to go. Isbell counts down as Henry drops the cutting head onto the disc. Suddenly, Isbell says, "Hold it, let's kill the drum vocal mic." A few seconds of band chatter follow before they kick off a driving version of Bruce Springsteen's "Atlantic City" and then return to the Stones with a cover of "Sway."

Isbell closes Side B with one of his own songs, the take-no-prisoners rocker "Never Gonna Change," which he originally recorded as a member of Drive-By Truckers. In the cutting room, Henry continues to watch his lathe closely, peering through the microscope to check the progress of the snake-like grooves in the lacquer, and making minute adjustments to the cutting head.

As Isbell and the band reach the last verse of the song, Henry's attention to the grooves intensifies. Grabbing the intercom phone next to the lathe, he tells Mara, "I've got about a quarter-inch left. You may have to fade."

Finally, Isbell brings the song to a close. Henry exclaims, "Barely got it!" as he manipulates the controls on the lathe to create the run-out groove on the spinning lacquer. "I predicted it would be 18 minutes long, which turned out to be a tight estimate, but I still got it to fit." ■



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MIX REGIONAL: NASHVILLE

PRODUCER KYLE LEHNING

Hit Making Producer Pays It Forward

BY GARY ESKOW

pike Jones and His City Slickers? "Yes," says Kyle Lehning, with a laugh. "One of Spike's records was the first I can ever remember listening to, in the basement of our fam-

ily home in Cairo, Illinois. My dad was a huge fan."

Lehning's father played a key role in the development of a long and stellar career that has garnered the producer three Grammys and a slew of hits.

Trained on the trumpet, which he kept at through his days in the Millikin University marching band (though he did not like marching), Lehning much preferred playing a Wurlitzer electric piano and a guitar with his rock band in the 1960s. "I had a Gibson single-pickup electric guitar and a 1964 Fender Princeton amplifier. I was the youngest guy in the band, and my dad would come to the club and stay until 2 a.m. so I could remain after hours."

Lehning was also a Jimmy Smith fan, and his father bought him a Hammond B₃ in 1969. "I'm looking at it right now, as we speak. There's nothing quite like the original, but some of the software organ emulations are amazing; I also own a Nord C2D that has drawbars. It sounds great, has a double manual, and it only weighs 34 pounds!"

In 1967 Lehning's band recorded some tracks in a studio located in Paducah, Kentucky. "Tommy Morris was the owner, and in retrospect his place was well equipped. It had Ampex line mixers, Ampex mono and stereo recorders, and a collection of great AKG and Neumann microphones. He could also cut acetates, and I fell in love with the studio the moment I walked in the door. The smell of tape, oh man!

"The summer before I went to college I told my dad that I wanted to learn how to be a recording engineer. The next thing I knew I had microphones, mixers, and tape machines. I was off recording bands."

Lehning eventually found himself in Nashville playing his band's tapes for Ray Butts, an inventor who played an important role in the development of the electric guitar. "Back in Cairo, Ray owned a hi-fi store. His daughter Katha played piano for me at band concerts, so I got to know him. He invented the EchoSonic guitar amp and also had something to do with inventing the hum bucking pick up."

One thing led to another, and Lehning moved to Nashville, where he started engineering and became friendly with songwriter Parker McGee, whose "I'd Really Love to See You Tonight," as recorded by England Dan and John Ford Coley, was produced by Lehning, and became the producer's first Number One hit.

Lehning's career took another bump skyward when he took an interest in an up and coming country singer named Randy Travis. "Randy's like a member of my family. We met in 1985 and are in touch on an almost daily basis to this day," Lehning says.

Lehning produced Storms of Life, Travis' debut album (two of the songs album were co-produced with Keith Stegall). Released in 1986, Storms sold more than 3 million copies. It included the Number One hit singles, "On the Other Hand," and "Diggin' Up Bones," as well as "No Place Like Home," which reached the Number Two slot on the Hot Country Songs chart.

"Everything began and ended with Randy," Lehning says. "The most beautiful thing about Randy is that he's not terribly complicated. He's clear about who he is as a person and as an artist. The sands never shift with Randy, and the songs we chose were the ones that felt most natural for him."

Decades into Lehning's career, he's in a position to choose projects based on what inspires him, without being overly concerned about chart numbers. Lehning's recent projects include a new Ronnie Milsap record, and an album by the young singer Dawn Landes. One of his long-term friends Lynda Carter, of "Wonder Woman" fame also cut some tracks in his studio.

Life is good for Kyle Lehning, and he has paid the debt he owes his father forward. His youngest son lordan is busy producing a number of projects and wrote a string chart for one of the Lynda Carter tracks, and another son, Jason, is a successful producer/engineer in his own right.

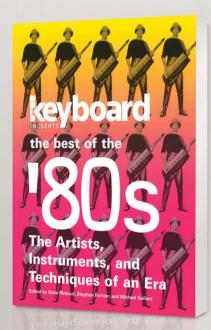
"There isn't much in the commercial world that appeals to me these days," says Lehning. "I've won Grammys, run a record label, and accomplished more than I ever thought I would. At this point it's about spending time musically and professionally with people I care about."



THE BEST INTERVIEWS

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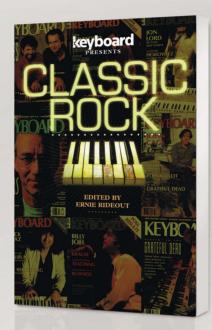
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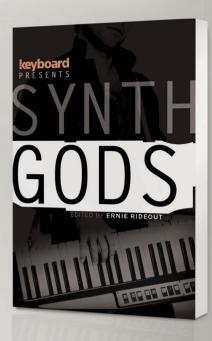
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SYNTH GODS

Culled from the pages of *Keyboard* magazine, this book spotlights artists who did much more than just play synthesizers: they changed the course of music history and inspired generations. Featuring in-depth profiles of Jan Hammer, Wendy Carlos, Rick Wakeman, Brian Eno, and others, this book delves into how these new, untested boxes of circuitry captured the imagination of so many legendary artists.

ISBN 978-0-87930-999-2 \$16.99



Tech // new products



RADIAL ENGINEERING BACKTRACK AND SAT-2

Small Form Factor, Playback Problem Solvers

New from Radial is the SAT-2 (\$99) stereo audio attenuator and monitor controller and Backtrack (\$349) compact stereo audio switcher. SAT-2 connects between a playback device and a pair of powered speakers, and

features XLR or unbalanced inputs, XLR balanced outputs, level control, dim switch with adjustable level, and mono sum and mute switches. Backtrack connects both input source devices via ¼-inch or 3.5mm connectors, and allows switching/muting between them using the front-panel controls or a JR-2 remote footswitch.



DRAWMER MPA-90

Twin-Channel, Class D Power Amp

Featuring a small, dual-mono block design, the Drawmer MPA-90 (\$695) works as a tabletop or rackmount unit. The fanless design features 90W per channel (into 4 ohms) or 180W bridged. The rugged steel chassis offers easy switching from stereo to mono-bridged

with the flick of a switch, and either balanced XLR or unbalanced phono inputs. Other features include thermal, overload and power-up/down protection, plus front-panel standby, fault and clip indicator LEDs.



GRACE DESIGN M900

Reference Headphone Monitor and DAC

The new m900 from Grace Design \$499 is a headphone amp/DAC combo designed for pristine playback from USB, S/PDIF or Toslink sources. The unit uses the same analog circuitry and DAC as Grace's larger monitor controllers but in a smaller, portable form

factor. Features include the latest generation AKM DAC chipset, operation up to 384 kHz PCM or DSD128, precision level control in 0.5dB steps, dual parallel headphone outputs, and operation from laptop USB power. Also included is an additional 2A USB power supply and USB connector for high-power-mode operation.



FOCAL SHAPE SERIES MONITORS

Affordable Speaker Brings High-End Features

The new Focal Shape Series comes in three sizes: Shape 40 (\$549) uses a 4-inch woofer, Shape 50 (\$749) a 5-inch, and the Shape 65 (\$899) a 6.5-inch. All speakers in the series feature flax-sandwich cones suspended via the new TMD surround, an M-shaped aluminum-magnesium inverted dome tweeter, and a double-passive radiator. Other features include Class AB amplification, a shelving filter for high and low frequencies (HF: ± 3dB from 4.5 kHz; LF ±6dB above 250 Hz) and an adjustable highpass filter.





KII STUDIO MONITOR

DSP Control, Six Amped Drivers

Brought to the U.S. and distributed by Grace Design, the new Kii Studio Monitor System (\$11,495 a pair) features four 6.5-inch woofers, a 5-inch midrange and 1-inch waveguided tweeter, all individually driven by six 250-watt Ncore amps per box. The enclosure features true cardioid dispersion addressing problematic bass issues. Other features include analog and AES/EBU inputs, an Active Wave Focusing crossover filter, and selectable correction for free-standing or near-wall placement. Short-term SPL: 110 dB; peak SPL: 115 dB.



OTO BISCUIT 8-BIT EFFECTS FOR UAD-2

Emulation of Epic Sound-Mangling Hardware

Developed by Softube for the UAD-2 platform, the OTO Biscuit plug-in (\$249) is an exacting emulation of the hardware box favored by EDM producers, DJs, and remixers. Features include versatile 8-bit crushing with individually switchable and invertible bits, an analog stereo multimode filter with resonance control, 'brain-mode' offering

four different lo-fi effects, and emulated true diode-clipping on input. The plug-in is available exclusively for UAD-2 hardware and Apollo interfaces.



RYCOTE INV-LITE

Affordable Boom Camera Shock Mount

INV-Lite (\$79) from Rycote's InVision range of boom shock mounts is specifically designed for indoor boom pole recording with ultra-short shotgun microphones. Features include a "Cam-lever" design that grips the mic at its rear near the XLR without touching the interference tube slots, and a "Wide" design allowing attachment of foam slip-on solutions. The new rod weight-distribution system provides superb balance across the entire suspension. Models are compatible with DPA 4017C, Sanken CS-1e, Sennheiser MKH 8060 and Schoeps MiniCMIT microphones.



AUDIFIED MIXCHECKER **PLUG-IN**

DSP Reference Monitor Simulation

The MixChecker plug-in from Audified (\$149) promises to be a onestop source for all types of reference monitor solutions. Simulation offers acoustic models of computer devices and classic reference monitors. The Compensation control offers four clearly labeled buttons to tell MixChecker that you are using average 5-inch or 8-inch speakers or headphones. The plug-in is available via direct download for 32- and 64-bit AAX, AU, VST2, and VST3-compatible plug-in for Mac OS X (10.6-10.11) and Windows (7-10).

New Sound Reinforcement Products



L-ACOUSTICS SYVA

Medium-Throw Reinforcement System

Syva from L-Acoustics (\$TBA) features six 5-inch MF speakers providing usable bandwidth to 87 Hz and three 1.75-inch HF diaphragm compression drivers. Optimized for extended throw and wide horizontal coverage, the transducer arrangement produces a 140°x26° (+5/-21°) directivity pattern. The companion Syva Low enclosure offers two K2 12-inch drivers designed to provide low-frequency contour and extended bandwidth down to 40 Hz. Syva can be wall- or pole-mounted, as well as flown or used alone with its baseplate. Alternatively, Syva can be mounted easily on top of Syva Low or Syva Sub using the AutoConnect plug-and-play audio and physical link.



AMADEUS DIVA M2

Three-Way, Line Array Component

The DIVA M2 (m-squared) from Amadeus (\$TBA) features an HF ensemble tweeter with two voice coils, each with its own magnet assembly and its own specialized phasing plug, which transforms the circular planar wavefront into a rectangular planar wavefront. The tweeter features a unique combination of extended frequency response, high efficiency and wide dispersion. The driver is a two-way system featuring a 3.5-inch (90mm) voice coil, covering the frequency range between 750 and 6,500 Hz with a smooth, linear response. The annular diaphragm for the high range, featuring a 1.75-inch voice coil, offers transient response from 6 to 22 kHz. Rounding out the bottom end is the DIVA M2 SUB, equipped with two 12-inch transducers mounted in a bass-reflex enclosure.



CLAIR GLOBAL C12 AND C8 LINE ARRAY

Reduced Weight, Smooth Response

Clair Global has released the C12 and C8 line array products featuring a custom waveguide precision-machined using Baltic birch plywood. Clair's True Fit Technology promises maximum coverage for audience areas and minimizes architectural reflection and anomalies. The C12 double 12-inch format line array and the C8 double 8-inch line array can be ordered with a variety of horizontal waveguide patterns. Standard factory waveguides are 90° and 120°, but a range of waveguides between 60° and 140° are also available.



YAMAHA RIVAGE CS-R10-S CONTROL SURFACE

Standalone Unit or Sidecar for CS-R10

The new CS-RIO-S control surface from Yamaha (\$TBA) is approximately two-thirds the size of the existing CS-RIO. A Dual Console function allows two CS-RIO and/or CS-RIO-S control surfaces to be connected to a single DSP-RIO DSP engine so that separate CS-RIO-S control surfaces can be used at both front-of-house and monitor mix positions. A CS-RIO-S can also be used as a sidecar for a CS-RIO.

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Tech // reviews

OCEAN WAY AUDIO RM1-B MICROPHONE

Large-Engine, Active Ribbon Trandsucer



cean Way Audio's RM1-B is the company's latest iteration of Cliff Henricksen's RM1 active, bi-directional ribbon microphone. The RM1-B has the RM1's motor assembly with a 1.77-micron-thick aluminum ribbon. It uses a discrete phantom-powered preamplifier designed to Henricksen's specifications.

With the RM1-B, the RM1's outer peaked pop filter has been replaced with a single flat, woven Nylon-Spandex™ screen framed in a stainless steel front plate. This front plate is removable/replaceable as it's held in place magnetically by the motor assembly's huge surrounding structure.

Looking like a small monitor speaker, the RM1-B measures 15.24 cm tall, 7.62 cm wide and 5.08 cm deep; it weighs 3.4 kilos, or about 7.5 pounds. It has an aluminum alloy body with a short, permanently attached XLR cable, and comes in a waterproof/ airtight Pelican travel case. The RM1-B uses a gimbal-style yoke mount with large knurl knobs on either side to tighten the mic's body into any tilted position. The yoke is attached to a standard 5%-inch threaded mic stand coupler using a hex screw that tended to come loose during my evaluations. The included mount is not a shock mount, but the optional ISO1 (\$170) boom shock mount is available. It uses replaceable elastic suspension bands, and I would recommend it.

Contributing in large part to the RM1-B's heft is the massive magnet structure shaped like an elongated "O" with the inside sloping walls machined into a magnetic waveguide that creates a focused magnetic flux density of 10,000 Gauss (1 Tesla unit) on both sides of the ribbon.

The magnet waveguide geometry determines the 90-degree horizontal pickup pattern lobe for high-frequency capture starting at approximately 6.5 kHz and extending far beyond audibility (67 kHz theoretically). The vertical pickup pattern is determined by the ribbon's 5cm height, starting with a wide lobe at low/mid-frequencies and narrowing at 6.5 kHz until by 13 kHz it becomes 45 degrees wide.

RECORDING VOICE-OVER

I started with a voice-over recording, and my VO talent wanted to try the RM1-B first. I used anywhere from 35 to 50 dB of mic gain from a Sunset Sound "Tutti" preamp. Even though I used about 6 dB more mic gain to match recording levels with a modern condenser mic, the RM1-B had a noticeable lower noise floor.

With ribbon mics, a windscreen should always be used, and for an up-close dramatic reading, I used my Pete's Place Blast Filter. There was the expected proximity, but the sound was open and detailed and not overly bright, with the extended high frequencies pleasing and not harsh sounding or boosted.

Positioning the RM1-B upright (recommended) in just the right spot required some rethinking/ learning. If possible, I used regular straight-up floor stands for vocals or voiceover work.

The RM1-B's large size, weight and the magnet's attraction to steel stands, adapters, connectors, tools or anything ferrous can be a little problematic when dialing in an exact placement. But I got used to pre-threading the mic to the boom end piece first, and then attaching

TRY THIS

For acoustic guitar and vocal recording, I arranged the mics so that the side null of the RM1-B vocal mic was aimed at the side null of the Røde NTR I used on the acoustic guitar. The side nulls of the two figure-ofeight mics working together produces an amazing amount of total isolation! Soloing either the guitar or the vocal, I could barely hear the guitar leakage into the RM1-B and minimal vocal leakage into the Røde.

this to a heavy-duty stand/boom with a counterweight and placing sandbags on the base. Do not use quick release mic adapters with this mic.

ACOUSTIC GUITAR/VOCAL

I recorded a Taylor 655C 12-string acoustic guitar with the RM1-B placed about 30 cm out front and aimed at the bridge for a bright sound. With 45 dB of preamp gain and using no HPF as a starting

point, this was just what the production needed; a touch of EQ/compression during the mix brought it home. The RM1-B provided good coverage of all the sound that instrument was projecting with pure detail and all subtle nuance. Just lovely!

For louder and harder playing, I moved the mic out to about 53 cm to pull in more of the room's ambience from the mic's back lobe. I aimed at the 12th fret and used 40 dB of gain. When playing softer and fingerpicking, I kept the same mic location but cranked up mic gain to 50 dB. In both examples, the RM1-B produced a clear, balanced and vibrant sound with plenty of the acoustic space around the guitar included.

At another session for a vocal/acoustic guitar demo, I used the RM1-B for the singer and a Røde NTR ribbon (also figure-ofeight) on his 12-string guitar. I had the singer close in at about 5 to 10 cm. This produced some proximity, and I had no problem with overloading with this experienced singer who used appropriate mic technique for the louder bits. I liked the intimate sound this microphone brought to the singer's performance.

ELECTRIC GUITAR

Next I tried recording both clean and distorted electric guitar amp sounds. I used my Fender Strat plugged into a little 5-watt Class-A amp connected to a 12inch speaker/cab.

I used a desktop stand and elevated the amp on an isolation platform. This allowed the mic's gimbal mount to swing the direction of the mic's pickup up or down anywhere from straight on the dust cover to any position on the speaker's cone. At no closer than 61 cm from the grille cloth, the gimbal mount allowed for dialing in the exact ratio of edge-to-tone sound mix.

The RM1-B revealed every detail—good and bad—about the amp's sound. It is an honest and warm sound with a mellowing effect like older ribbon microphones produce. But the RM1-B has more accuracy, clarity and depth. This was an overdub, so I was free to move the mic further away for less proximity and more of the rear lobe in the sound. But I was careful not to get too close in and added the Blast Filter to prevent speaker chuffing or port air blasts from damaging or distorting the ribbon.

PRODUCT **SUMMARY**

COMPANY: Ocean Way Audio PRODUCT: RM1-B Active Ribbon

Microphone

WEB: oceanwayaudio.com

PRICE: \$2,600 MSRP

PROS: Silky, realistic and rich-sounding

CONS: Heavy and a little unwieldy to set up

DRUM ROOM MICS

I set up a pair of RM1-Bs as a Blumlein coincidence stereo pair array. I wanted to capture an ambient-realistic recording of a drum kit positioned at one end of a large drum recording room. The drum kit projected sound lengthwise down the room's 7.7-meter length. (The room is 3.5 meters high and 6.4 meters wide.) My laser-measuring device indicated that the Blumlein pair was positioned 3.34 meters out in

front of the kit and centered within the room's width.

I used two stands so that the bottom RMI-B was 1.41 meters above the floor with the second boom stand holding the upper RM1-B so that it was nearly touching the top of the bottom mic. Both mics were turned 90 degrees (right angles) from each other so that both of the mic's front sides were aimed left and right towards the drum kit. It took some time to get the two mics positioned—that's 15 pounds of microphones—so they didn't magnetically "stick" to each other.

This setup produced one of the best room sounds I've ever heard. I got a complete drum sound with loads of low frequencies—much more

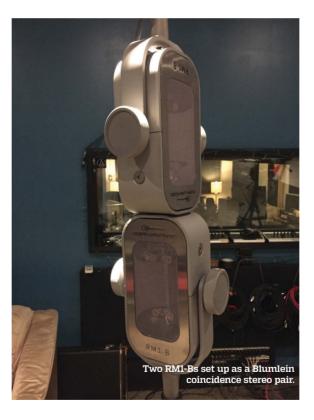
> than using a condenser. The 24-inch kick sounded like it did in the room, and the toms and snare were all in balance and present.

> Listening to the pair panned L/R in an audience's perspective, I could easily hear the left side of the kit—ride cymbal, crash and floor tom-and the right side with rack tom, crash and hi-hat cymbals easily located and heard in the stereo field. The transients were clear but not harsh, and the cymbals were in balance relative to the rest of the kit.

> There was a slight tendency toward a "boxy" flavor, but when mixed with the close drum mics, it produced a very organic overall drum sound. The RM1-B was remarkably true to the source, as my drummer, kit and room were top-notch.

> The company cautions: "excellent for just about any instrument except nearfield kick drum and near-field bass guitar speaker pickup (LF will harm the ribbon)." I quickly found this true for two RM1-Bs as overhead mics located about 1.5 meters above a drum kit-the toms and kick overloaded the ribbon.

I was impressed by the ultra-realistic capture provided by Ocean Way Audio's RM1-B Active Ribbon microphone. It is excellent for instruments or vocals-close in for medium to soft sources or for the ambient pickup of distant loud instruments such as drum kits or guitar/bass cabinets. ■



Barry Rudolph is an L.A.-based audio engineer and educator. Visit him at www.barryrudolph.com



KEF LS50W WIRELESS STUDIO MONITOR

Compact Active Speakers With 4 DACs, Wi-Fi, Bluetooth and App Control



The KEF LS50s offer five different inputs, including wired (RCA), Bluetooth, Wi-Fi, Optical and USB.

EF is a multinational company that makes architectural speakers, headphones, home theater, hifi and "digital solutions," the category where the LS50W Wireless monitors reside. Although I'd never heard of KEF, once I got the units in for review, many of my colleagues at Blackbird Studio in Nashville not only knew of them, but cited several longtime Nashville engineers who use and love the company's speakers.

The dual, bi-amped enclosures (30W class A/B for the tweeter and 200W class D for the mid/bass) feature the company's Uni-Q driver—a 5.25-inch woofer with a 1-inch tweeter floating in the center (aka coaxial, though a variation). The benefits of this design are the consistent, phase-correct delivery of low- and high-frequency material to the listener and the real estate gained by not having separated drivers in the box.

The LS50W Wireless monitors debuted in October 2016 and come in Gloss White with a copper driver, Gloss Black with a Blue driver, and Titanium with a Red driver. The word wireless in the title is a bit misleading in that you can use them that way, but there

are plenty of input options that cover all the bases. I used them in tracking and overdub sessions in various rooms at Blackbird and in my home.

KEF unabashedly calls the LS-50Ws an audiophile speaker. This sends up red flags for some engineers, but that's an argument for another day with plenty of drinks. I've had my most moving listening experiences on audiophile systems, so to me it's just another product description.

The IEC power socket and all the I/O are on the designated right monitor and includes: Optical (Toslink), USB type B (labeled PC), female USB type A for system upgrades, Ethernet Network input, a dedicated Ethernet output to the left speaker, RCA L/R inputs, and an RCA subwoofer output. There are small push-button EQ adjustments for Desk or Stand mount,

and proximity adjustments for Wall or Free Space, as well as a deep-set Reset button for returning everything to its factory setting. The monitors are also capable of Wi-Fi and Bluetooth operation. At the top of the speaker are soft-touch switches for turning them on, and toggling between the five input modes— Wi-Fi, Bluetooth, Aux (RCA), Optical and PC (USB).

The left speaker carries an IEC, a manual balance knob, and the Ethernet input used to bring audio to the speaker. The enclosures are solidly built, and the fit, finish and color options are beautiful. KEF uses "constrained layer damping bracing" inside the box, with a precision-made curved baffle and elliptical, flexible sound port to reduce turbulence and chuffing. The internal tech continues with an end-to-end 192kHz/24-bit high-resolution digital signal path using two dedicated DACs per channel (four total). The digital conversion first happens as soon as the signal arrives in the right speaker then moves to the left through the Ethernet connector. A second DAC is used post-crossover in each enclosure, allowing a more granular decode and control of the signal after DSP. Each driver is treated as a separate entity in the analog phase of the output for better quality.

For control, there is a battery-powered remote and an app, which is where Bluetooth and Wi-Fi enter the picture. Before I even heard the monitors, I downloaded the app from the Google Play store and connected my phone, Blackbird's Wi-Fi network and the speakers. The procedure is standard fare, the same way you would set up a wireless thermostat, fan or other consumer device. Once it's done, you can use the app to vary a number of great features.

At the bottom of the app's menu screen, the Settings tab takes you to a second page, where you can send feedback, go to KEF's website, etc., or to My Speakers. This is where you can add another set of LS50Ws or go to your system for tweaking (this only works if your speakers are on and set to Wi-Fi). The first stop under Speaker Sound Settings is a more consumer-oriented page where you designate how your speakers are set up (stand or desk), how close they are to the back wall, how large your room is in meters, and whether a sub is plugged in.

However, pros wanting more precision are going to want to choose the Expert page. Here, there are choices for engaging Desk and Wall Mode—unlike the app's consumer section you can peel back the Wall mode (at 220 Hz) up to -6dB of attenuation in 0.5dB increments. There is also a treble trim where you can boost/cut the top end ±2dB. Next is a phase correction switch that "removes phase incoherence/time smearing caused by the crossover, allowing the LS50W to achieve a nearly 0-degree phase shift between crossover filter outputs." If this is true, which I'm sure it is, it should be on all the time. There are choices for Bass Extension, Less, Standard or Extra. I left my system in Standard mode at all times and they worked perfectly across all my applications.

The settings grouped at the bottom of the app are all about the sub. You can set the High Pass frequency anywhere between 50 Hz and 120 Hz, set the sub outputs LP frequency anywhere between 40 Hz and 250 Hz, adjust the sub's gain plus or minus 10 dB of 0, and flip the sub's polarity. The app is a tweaker's paradise that you can toggle right from the listening position. The only downside is that the speakers need to be in Wi-Fi mode to use the app, meaning you can't A/B settings immediately. This, and the lack of balanced inputs, is where the LS50s would gain from a Pro Audio version that incorporated these features.

INTO THE STUDIO

After a break-in period of many hours, my first listen was on an overdub session in Blackbird's iconic Studio C. I set everything flat, turned off the Desk and Wall modes, and got to work. If anything, the bottom end was a bit too round, so I tempered that by putting the monitors back in Wall mode and attenuating the bottom end a dB or 2—perfect. My kick drum, pop of the snare and overheads, silky top end, and punchy midrange sounded exactly as they did in the tracking room where I monitored on an ATC soffit-mounted system and Genelec 1031s.

The overdubs were guitars and percussion, which also sounded fantastic—plenty of smooth top on tambourine and shakers, and punchy, cutting mids on a guitar amp recorded with a Royer 121 and SM57. When I added EQ using the channel on the SSL 9K, it sounded as I remembered on other sessions. It was a treat learning to trust the LS50Ws. I always have a time getting used to the auto-shutoff that some systems have. The KEFs shut down after about 15 minutes, and you have to tap the

PRODUCT **SUMMARY**

COMPANY: KEF WEBSITE: KEF.com **PRICE:** \$2,199.99 (a pair) PROS: Compact, great-sounding monitors. App control and wireless remote, abundant inputs. **CONS:** Remote switching requires Wi-Fi mode, no balanced inputs.

controls at the top to fire them up again. A minor inconvenience you get used to in the studio.

Next, I took them in to Blackbird's Studio E on top of an API 1608 where I found the first flaw. I was using a short XLR-to-RCA turnaround to get from the console to the KEFs, but in this room there was noticeable 60-cycle hum from the LS-50Ws when my large and alternate near-field monitors were chosen. This went away when the

KEFs were the main speaker.

I tried ground lifting the AC plugs and even swapped to new XLR to RCA translators, but it didn't help. Being that I didn't run into this in two other rooms, I figured it was a problem between the API and the LS50W's unbalanced inputs not playing nicely together.

During the session, it was revealing as I quickly switched between ATC SCM50As and the LS50Ws—the jump was surprisingly comparable. Of course the larger monitors had more bottom end, but the overall balance of frequencies, smoothness of mids and highs, and overall sonic presence in the room was so similar that it got reactions throughout the room as I switched between them.

I started using the KEFs on every session over a two-week period all with great results and then took them home to see how they fared in less than professional environments. I sent the LS50Ws audio optically from my TV and set the system up on my Wi-Fi network. They sounded fantastic. I streamed movies from Netflix and Amazon, played Apple Lossless songs over the Bluetooth connection from my phone, jumping between the two setups with the remote. It's a beautiful high-end system for the home, where the bountiful I/O, remote control with app, and wireless options fit perfectly.

Where could they benefit? Apart from adding balanced inputs and the ability to immediately A/B using the app, I'd like to see dedicated Mode switches on the remote itself. In other words, instead of toggling blindly through the five monitoring modes with an up and down switch, it would be better to be able to jump from Optical to Wi-Fi, or other nonconsecutive settings directly with a button. For home use I would love to be able to have five LS50Ws playing back a Dolby stream from my Amazon Fire or Apple TV, but multichannel decoding is not supported, nor is Dante, which would be interesting. These added features would of course drive up the price, but the connectors are already there and it's not a leap to think there would be interest.

The KEF LS50Ws break a lot of new ground in a unique way. First, the sound and features-to-price ratio is unheard of—they are a true bargain. They are compact, yet the bottom end is bigger and more trustworthy than you would ever believe. If set up correctly, I'd not hesitate to make confident low end decisions—even without a sub! There is plenty of booty. And although there is room for improvement, the remote controllability is excellent. Rather than having just preset EQ functions, you can trim the levels to fine-tune your experience.

Finally, the LS50Ws sound great. It's luxury listening in the studio and at home. So if you have the money in your budget and you're looking for a portable, truthful monitor, you have to give the KEF LS50Ws a listen. You won't be disappointed. ■

Kevin Becka is Mix's technical editor



ADVANCED AUDIO MT8016 PREAMP

Dual-Channel Gainer in the Trident Tradition



The MT8016 features 60 dB of gain, switchable phantom power, HPF and polarity per channel

've been using Advanced Audio's microphones for a while now. Designer Dave Thomas' forte is making classic mics that are true to the vintage character but with a fresh, modern twist. But when designers build amazing mics, a preamp is never far away, and the folks at Advanced Audio have unleashed the MT8016.

It was Joseph Magee, a scoring engineer now in Nashville, who got the ball rolling on this project. He asked if Thomas could build him a preamp inspired by the legendary Trident Series 80 console. So it made perfect sense to team up with the man responsible for that "British" Trident sound, Malcolm Toft. To complete the team, Thomas called on Tom Graefe, who has designed for MCI and Wunder Audio. Each MT8016 is assembled at a workshop in Canada with custom-made, British transformers. The cases and circuit boards are all manufactured in Canada.

This triumvirate of top designers agreed on using high-quality input transformers without a pre-transformer pad, which tend to "suck the life out of the preamp," says Thomas. By removing this padding stage, the character of the input transformer is more audible and colors the sound in a very musical way.

Just like its Series 80 ancestor, the MT8016 is made up of two gain stages controlled by a dual gain pot, increasing the headroom and transparency as the two stages work in tandem. Each op amp stage delivers 30dB gain, and the input transformer adds a little over 10dB, resulting in an overall gain of around 70 dB. If you're dealing with high-SPL material, the unit gives you a -10dB attenuator (-10dB setting at the start of the gain pot) after the transformer stage.

Onboard the MT8016 is a variable HP filter (30-350 Hz) that

Thomas found invaluable in his MCI/Sony MXP3036 console, which was designed by Graefe. Their view, which I share, is that a variable HP filter is usually all you need to clear up a muddy guitar. The MT8016 also features a large analog VU meter, with a Peak LED above the gain control. The back panel features gold-plated XLR in/out sockets, a pair of balanced TRS outputs and the IEC.

The MT8016 uses OP275 ICs in the audio path. This IC has twice the slew rate of the original TL071, and it can drive 600ohm loads. In the original Series 80B console, the TLO71 started to suffer from loads greater than 5k ohms because Toft buffered the output stage with a pair of transistors. The OP275 negates this buffer stage requirement. There are also 1% precision resistors, and very low-ESR (Equivalent Series Resistance, if you want to geek out!) coupling capacitors are used throughout the unit. To complete the chain and fully capture "that British sound," the output stage has been transformer-coupled.

RACKING IT UP

Once you bolt this thing into your rack, you will not want to let go of it. To test-drive this puppy properly, it had to travel with me to sessions-first to RAK Studio in London. Mo Michael, a wonderful artist I'm recording, and I decamped to RAK's Studio 4 to record vocals and acoustic guitars. I used an Advanced Audio CM251

Many pieces of audio gear, preamps included, can be overdriven, but they don't all sound great when you do. The MT8016 is a preamp I wanted to take to its limits, and I needed a gritty edge to a blues harmonica track. So I cranked the hell out of it and drove the input, which delivered that hot and fat crunch I needed. Beautiful!



microphone paralleled to a selection of mic pre's—one modern, two vintage. It became clear quite quickly that the MT8016 was getting the upper hand on both vocals and the Gibson J-200.

The vintage mic pre 1 prefer and the MT8016 Pre were extremely close. Upon first listen, the vintage pre had a little bit more bottom end and what appeared to be more HF. However, when I started listening closely to our takes, the MT8016 offered a tighter and rounder bottom end and a nice presence that I can only describe as "mix ready." It's almost as if its been EQ'd and gently compressed and just slots right into the mix.

I couldn't quite believe that a brand-new preamp was blowing the socks of an all-time classic I've been using for years, so I wanted to make sure I wasn't fooling myself. I was asked to record an album that contains a lot of different instrumentation, providing the perfect scenario to sling a variety of sources at the preamp.

Harpsichord was captured with a U89, percussion with a U67, and cello was picked up by the CM251. For lead vocal, I wanted the opinion

PRODUCT **SUMMARY**

COMPANY: Advanced Audio **PRODUCT:** MT8016

WEBSITE: advancedaudio.ca

PRICE: \$995

PROS: Tight sound with loads of headroom, good value for the price.

CONS: Would benefit from a Mid/Side

function.

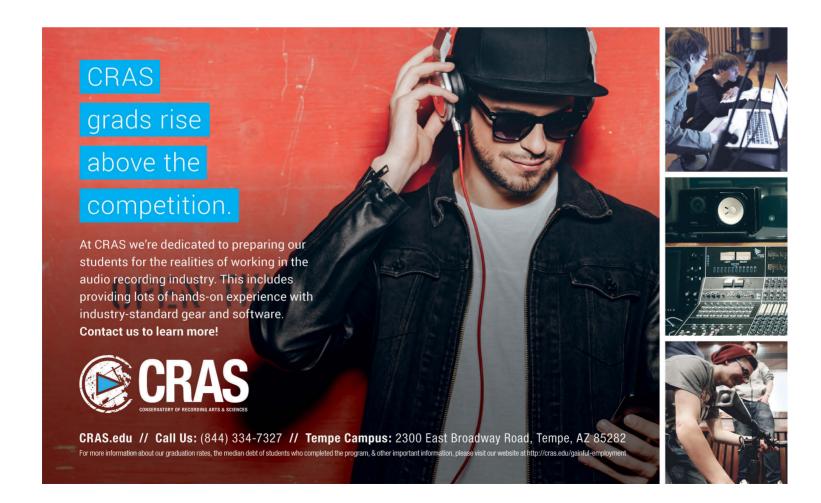
of both the producer and the artist. I rigged a vintage U67, C12 and the Ad-

vanced Audio CM67se. They all ran through the console's preamps and were paralleled to the MT8016. I instantly knew what choice to make and was nicely surprised that my listening companions unanimously went for the CM67se/MT8016 combo.

IT'S A BUY

I am sold on this dual-channel microphone preamp, as are my clients. In an industry where a little knowledge can be dangerous and tends to lead to exclamations like, "It's cheap, so it has to be crap," it is so satisfying to make people listen to new designs, open their eyes and ears, and see those predilections fade away instantly. I can only suggest you try the MT8016 for yourself and fall in love with it as I did.

Wes Maebe is a London-based producer and engineer.





TOVUSOUND EDWARD ULTIMATE SUITE

Playable, Foley Instrument Plug-in



The Edward Ultimate instruments are set up to be playable on a 25-key controller.

oley is a rather specialized and precise audio production process, with many inherent challenges. First, quiet is a must. Final, synched sounds often require several passes with several elements. As layers are created, background noise builds. Also, for footsteps, the signature sound that most people associate with Foley, numerous surfaces and shoe types are needed. Few studios can commit to such a range.

Tovusound's Edward Ultimate addresses these problems by presenting a flexible, interactive, playable Foley artist in the form of a software instrument for Native Instruments Kontakt 5. Previous versions of Edward Ultimate required the purchase of the full Kontakt 5, but Edward Ultimate SUITE can run on the free Kontakt Player 5.

The SUITE includes one module set up for performing footsteps, with a selection of shoes and surfaces. The other module provides cloth sounds and props. Using any MIDI keyboard controller, these sounds can be performed in real-time, in sync with picture.

THE INSTRUMENT

When creating Edward, Lara Dale and Josh Reinhardt, an accomplished Foley artist and Foley editor, respectively, recorded a wealth of footstep samples, from five shoe types recorded on dozens of surfaces. For each shoe/surface combo, samples of walking at various speeds, running and jogging, and climbing stairs were all captured, as were various stomps, scrapes, jumps and landings.

The sheer number of samples used to create this instrument makes it unique; so does the velocity-sensitive, randomized triggering of samples to break up artificiality. The plug-in interface makes it incredibly easy to create natural-sounding performances, with a GUI somewhat resembling a pair of turntables. Two "decks" are provided, and each can host a unique combination of shoe type and surface.

Each deck has controls for tweaking the sound to fit the character and scene. Because every performance was recorded with a Sennheiser MKH416 and a Neumann KMR 81i, a blend control allows the user to scale the balance between the two. A pitch control cleanly shifts the tonality of each sound, and a three-band EO with fixed-frequencies is accompanied by highpass and lowpass filters.

During a performance, the modulation wheel on the connected keyboard acts as a crossfader, for shifts and blends between the two decks. This function serves multiple purposes. For example, if the character crosses an asphalt road, steps up onto the curb, two steps on the grass, two on the sidewalk, and then back onto the grass, it's easy to adapt to the changes. Alternatively, a custom blend of two textures or shoe types can be sustained throughout a performance, creating an altogether new sound.

All of the sounds in the Edward Ultimate instruments are set up to be playable on a 25-key controller. A map of the keyboard layout sits along the bottom of the GUI, spelling out which sound will be triggered by the stroke of each keyboard note. For example, the low C and D produce slow steps, while E and F produce medium-paced steps, all the way up to the middle D and E triggering stair-climbing sounds, with jogging and running at different speeds in between. In most cases, the sounds are grouped in pairs like this, for performing left and right steps with two fingers.

In some cases, it becomes a long stretch of the fingers from slow

walking, up to the stomp key, or from stairs down to jogging. In these cases, the pitch wheel is your friend. In the center of the instrument's GUI, there are settings to program what will happen if the pitch control is turned up or down. In each case, an alternate sound, or pair of sounds, within the same shoe and surface set can be cued up. So, if walking sounds are being played, but a quick foot slide is needed, the pitch wheel could be pushed

For a character walking in a creaky old house, load the "Carpet" or "Creaky Wood" on one deck and the "Creaks 1" on the other. The "Creaks 1" sound has no attacks, just long creaking sounds. Use the mod wheel to slip in some creaks during walking and then push all the way to the creaks deck for pivots, turns and weight shifts.

up and the same keys will now create slides. There is also an integrated convolution reverb, including impulse responses of 15 spaces, in both mono and stereo versions. "Distance" and "Size" controls seem to serve as a wet/dry ratio and decay time controls, again allowing the sound to be tailored to the scene.

SOFTWARE FOLEY ARTIST

I have an M-Audio Oxygen 8 that I use for sound design, and I used that to control the software. I am not a proficient piano player, but I can play one-handed

bass lines or melodies. When I first fired up the Edward Ultimate instrument, I spent some time getting comfortable before trying it with picture.

The samples sounded very good. There are great full lows and superb detail in the highs. If listened to at high volumes, a small bit of room tone was audible, but this is almost always the case with Foley recordings.

Getting used to Edward Ultimate was like learning any instrument—a little clunky at first. Trying to perform timing and dynamics while using the mod or pitch wheel took a lot of practice. After regular use, however, I could create the sounds that I wanted, matching the onscreen performance.

The first time I tried it with picture, I chose a scene where two men with similar shoes were walking on dirty pavement in an alley. In a traditional Folev session, the artist would watch the scene and then nail the performance in one or two takes, subject to a little bit of editing. With Edward Ultimate,

I would have to practice a few times, then tweak some settings, then practice again before I could do a take. But by the time I recorded a take, it was usually spot-on.

If walking went on for a long while, at the same pressure, the samples could start to sound a bit repetitive, but in most cases, the modulation wheel fixed this. I would walk on the same surface with two similar but slightly different shoe types and subtly rock the mod wheel to create more variation. Alternatively, I could load asphalt on one deck, and dirt on the other and do the same rocking of the mod wheel for realistic textural variations.

I tried going big and worked on a scene where a character clumsily scuffed his way down a hill. I wound up having to use the pitch wheel to switch between steps, slides, scuffs and stairs to get a good-sounding take. However, there was no way to do my mod wheel randomizer trick while also riding the pitch wheel. An actual Foley performance of that complicated sequence wound up sounding superior. Then again, how many sound designers have access to professional pits?

I first tried the Clothing and Props module in combination with the footsteps instrument. Setting both to receive a signal from the same MIDI channel, the two synched up, with the clothing simulator adding a nice extra layer of movement to the steps. The samples had a nice sense of decay, which continued to play after the key was released. One problem with this method was, I couldn't perform separate head turns or arm movement without simultaneously triggering a footstep.

Changing up the workflow and doing cloth and foot-

PRODUCT **SUMMARY**

COMPANY: Tovusound **PRODUCT:** Edward Ultimate SUITE **PRICE:** \$399

WEBSITE: https://tovusound.com PROS: Quick, believable Foley can be performed in an acoustic environment.

CONS: Complicated, subtle sounds might require supplemental Foley

steps in separate layers proved the only solution. In one case, to create the sound of a man in a suit, I paired a dress shirt with a peacoat, and the sound was convincing enough. While quick staccato moves read well, I could never pull off long, flowing legato performances. For more dialog-heavy projects, the quick, loud sounds are all you need, so this is no problem.

Overall, the biggest sounds were the most impressive. The creaky leather jackets, military armor and the backpack sounded convincing. The props were also successful. Performing sound for a

character running with a machine gun and then stopping, drawing and aiming it, Edward Ultimate produced a preferable sound to the previously recorded Foley.

NEW WORKFLOW?

Foley artists needn't feel threatened by Edward Ultimate. I believe most supervising sound editors will choose real Foley when it's an option. However, for sound designers with limited time or budget for Foley, this is the best option I've heard. I'm a fan, and because the pitch and modulation wheel make it, I recommend checking out the full Edward Ultimate SUITE.

Brandon T. Hickey is an independent recording and film sound engineer based in Phoenix, Ariz.





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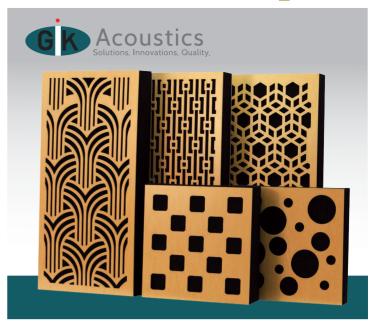






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TechTalk

Tricks for Making Better Tracks



By Kevin Becka

imply by being organized and paying attention to detail, you can improve the sound of your tracks. The reason? The minutes you don't spend fixing/recovering from a chaotic workflow or searching for a lost take

can be spent on the music and all the tiny nuances that make a project sound great. It's the "secret" to success, and I should know. I am a detail-oriented guy (my editor might say obsessively so!), whether at home, in front of a class or in the studio.

The workflow tips described here are based on a Mac/Pro Tools setup, although they could be applied to any DAW with some tweaks.

Does the difference between the numbers after a playlisted track name and the actual Pro Tools playlist numbering system confuse you? Join the club! The way to align the track and the take in a session is to burn the first take. In other words, don't record to the first playlist—leave it empty. After you make your tracks, choose to increment them all to a new playlist (Control-Option-Shift-Backslash). This way, the playlist number on each track K In.o1, etc. is the take number. If the band asks what take they're on, just look at any track name; the number after the name is the take number.

The next tip is to print the click on each take of your tracking session. First, create a click track from the Track pulldown (Create Click Track), then use the New Track feature in Pro Tools to send the output of the click (aux) track to a new mono audio track called CLK PRNT. Because bands may slightly alter the tempo from take to take to find the perfect groove and feel, this gives you the luxury of having a dedicated click on every playlist take that matches each take. You can also use the printed click to clip gain the click down in quiet sections of the song to reduce leakage on overdubs or easily mute it on the last chord for the same reason. This saves a lot of time over automating the click plug-in.

Other organizational tricks are deceptively simple. For example, when evolving a song from tracking to overdubs to mix, create "saved as.." .ptx session files for each workflow. This gives you a history of your work and offers the ability to jump back in time and recover from experimental workflows. It also keeps a clean record of the session on the tracking day in case the band comes back. This is pretty simple, though it can become organizationally chaotic having so many versions of a song.

To keep things neat, first create the "saved as" session from the tracking session <song name.OD>. Then, use Command-Tab to jump to the Finder, hit Command-N to open a new browser and navigate to the same song folder. Create a new folder here called OLD SESSIONS (Shift-Command-N). If you want to add some personal flair, use special characters at each side of the name of the folder to give it a different look.

Make it a habit of putting older sessions in this folder as you work. What's the benefit? The only session at the topmost level of the song folder is the latest, keeping things simple for yourself and other users. By the way, if you leave the browser open, you can easily jump back and forth between the Finder and Pro Tools using Command + Tab. This keeps you from having to move or close the Pro Tools Mix or Edit windows to get to the OLD SESSIONS folder.

Creating rough mixes on a raw Pro Tools tracking session when you move to overdubs can take time. But by doing an easy bit of pre-production, you can carry the tracking console's mix to any room for overdubs, even a small room with just Pro Tools and a controller.

First, open a blank session template from your project. From the template choose to create a new session called FADER LEVELS and use the Option key to send all tracks to a single stereo pair of outputs (e.g., 1-2). This will bring up a panner on every channel. Then it's just a matter of looking at each I/O on the console and storing the physical fader and pan settings to the new Pro Tools session's channels. For example, the "K In" fader is set to -10dB/panner center, then move to "K Out" etc. (Holding Command will put you into fader fine-tune mode, moving it in o.1 dB increments.)

Once finished, you can use the Fader Levels session to import a tight, rough mix into all your "saved as..." overdub sessions. From the overdub session, use Shift-Option-I to open the Import Session dialog. At the bottom of the Import pop-up, set the "Track Data to Import:" dialog to None. Then from the same pulldown, choose "Volume Automation And Setting" and "Pan Automation And Setting" only. Then, click on Match Tracks and then OK. Your Overdub session will spring to life with a good rough mix from the tracking day, which you can then fine-tune instead of starting from scratch.

A great resource for more advanced tips and guidelines on session workflow is at www.grammy.org. The page is called Tools, Tips, Guidelines, and Recommendations - Technical Guidelines for Producers and Engineers. By keeping things neat and using advanced workflows, you will not only tighten up your production chops; it may find you more time to focus on the real work.



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