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BY KEVIN BICKA



On the Cover: A typical day at Sonic Ranch, where multiple artists and producers work out of five rooms. Here, the Dirty Heads, Rome Ramirez, Jessica Hernandez and Nina Diaz gather with a few staff in the Neve Room. Photo: Alan Esparza.

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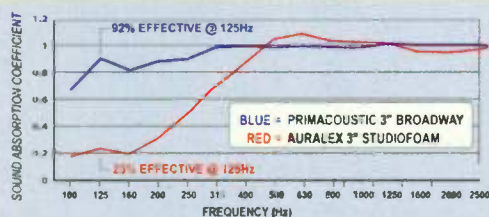
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Digital Mixing Consoles for Live Sound, Theatre and Broadcast...



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SD5

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From the Editor

THE IMPORTANCE OF SOURCE

A two-day visit to Sonic Ranch in West Texas, on the dry open lands of the Rio Grande Valley, got me thinking about source. There's lots of time to think out there, amid the 2,000 acres of pecan trees, horse farm and star-loaded skies. It's a completely turnkey production facility, what foodies might call farm-to-table but what we call source-to-distribution. But what exactly is "source"?

For manufacturers, source is all about getting audio into a computer, most often in a manner that imparts a certain character, whether you call it analog, warm or rounded. This is why we've seen a bevy of products in the mic/mic pre/converter/interface categories over the last ten years, ranging from desktop USB units to \$8,000 single-channel, single-function handmade gear. It's all about getting quality sound into the computer.

In talking to engineers and producers over the years, there have been countless times where, in response to a question about the vocal chain for XYZ artist, they run through the equipment list, make a brief pause, and say, "But of course it's all about the singer and the song. You can't do anything without a great voice and a great song."

In walking the rooms at Sonic Ranch with owner/director Tony Rancich, he points to the seemingly limitless collection of vintage instruments and amplifiers, from 10 drum kits to suit any style, to rare custom guitars and combo amps. to his newest predilection for vintage synths and early drum machines. "You don't have anything without the right source," he says, "and the right instruments depend on the song and the style. We want to have all the colors here for a musician to create." Source as instrument.

Then, in further discussions with Rancich as we drove around the

property and talked about his fascination with world cultures and fabrics and art work, the definition expanded, so that source became vibe. Source became inspiration. In that sense, stepping back and looking at the recording process from a bird's-eye view. Source is about the total recording environment, the place where an artist comes to create the song. It can be a single, favorite room at Record Plant where an artist feels at home, or a re-fitted house in upstate New York. It can be a converted garage in Austin or a hotel studio in Miami. Source is the place where an artist is inspired.

At Sonic Ranch, it involves the breakfast when you wake up, the interaction with artists and producers all around you, the pecan trees on the property and the bike ride down to the river to clear your head and come up with lyrics for the next verse. It's about a rare and massive collection of outboard gear and classic instruments and consoles with stories behind them. It's about the coolest coffee maker in the world and the 85-year-old exposed logs that form the beams and support in the Mix Room. It's about Tony, Marco, Charles, Manny, Jerry, Zach and all the support staff that make the beds and cook the food and make sure that artists are free from distraction, energized and comfortable, and inspired to create.

So source isn't just a front end for a computer. It's about the creation of art, from soul to brain to mouth to mic, in whatever environment makes you comfortable. Source is vibe. Source is music.

Thomas AD Kenny
Tom Kenny

Welcome to NAB!



The NAB Show—the world's largest electronic media show covering filmed entertainment and the development, management and delivery of content across all mediums—returns to the Las Vegas Convention Center April 5–10, 2014, with exhibits taking place April 7–10. Anticipating more than 93,000 attendees from 156 countries and more than 1,550 exhibitors, NAB Show is a vital marketplace for digital media and entertainment.

Pro Audio exhibitors will be based in the Central Hall, focusing on 5.1, Audio Editing, Mastering, Mixers, Effects, Production, Post-Production, Encoding, Recording and Compression Technologies, while post-production

exhibitors in South Lower Hall will feature Editing Software/Hardware, 3-D Technologies, Mastering and Duplication, Music and Sound Libraries, Encoding, Format Conversion and Workflow Solutions. The Broadcast Engineering Conference will offer technical papers and include RF Boot Camp on April 9, which will offer basic knowledge regarding the operations of a broadcast radio or television RF plant, covering the distribution of program and data content from the studio to the RF transmission points. On April 8 and 9, the Media Management in the Cloud conference will provide an overview of how cloud-based solutions positively impact each stage of the content distribution chain, including production, delivery and storage.

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New Gear from Musikmesse and Prolight + Sound 2014

By Mike Lawson



Montarbo Virtual Mixing Technologies VMT

phone is shipping in April 2014 for around \$1,500. The TLM 107 is a high-resolution sound transducer said to capture sound without adding coloration. It is offered in black or silver, with a sleek look as good as it sounds, and comes in a newly designed casing.

Montarbo demonstrated the Virtual Mixing Technologies VMT, a real-time mixing and monitoring environment combined with 120-channel recording and editing based on the SAW DAW with currently up to 96x96 I/O channels. Targeting the live concert production and recording markets, Montarbo is producing a touchscreen-based mixing system, using Direct X VST plug-ins that will not allow the use of any latent plug-ins in the system, with sample accuracy on any route used.



PreSonus Monitor Station V2

industrial design, 96 channels to mix, onboard Dante compatibility in a compact footprint.

SSL announced a new V2 software update for its SSL Live console, along with new Duende native recording plug-ins. The Version 2 software, which releases April 2014, adds more than 25 new features to the SSL Live console, enhancing the Output Matrix, Effects Rack, User Interface, Routing, Solo System and Focus Channel. V. 2 also introduces a comprehensive Offline Setup application. It will be standard on all new consoles and available for free to existing owners. The SSL Duende Native plug-ins release includes X-Saturator and X-Valve-Comp, which are designed to bring analog saturation and distortion emulation to a DAW. The X-Phase plug-in delivers high precision frequency-specific phase correction. The plug-ins are set to release on May 1, 2014. SSL also announced migration of the Duende Native plug-in collection to the iLok copy protection system and a summer release for AAX versions of the entire suite.

Manley showed its exciting new CORE Reference Channel Strip (\$2,000) with Class-A tube mic/line preamp, Direct Instrument input, 3:1 ELOP Compressor, Baxandall EQ, FET Brickwall Limiter and Analog VU Meter. PMI Audio unveiled the impressive Trident 88 8-bus console featuring a fully discrete Class-A design mic pre with the option to add Lundhal transformers to any number of channels. Its Fully Modular Design means that all channels, faders and connections are individually removable for servicing.

Universal Audio announced a new developer relationship with TC Electronic for UAD Powered Plug-ins. No specific new plug-ins were announced but UA anticipated some of TC's classic products to be included. Audionamix gave me a private demo of ADX TRAX, its one of a kind source separation solution, and it was pure magic. It provides an intuitive workflow, powerful separation algorithms and a unique, melodic "pitchogram" that focuses on displaying the fundamental frequencies of the main melody within a given mix. "Using ADX TRAX saves countless hours when trying to achieve a superior vocal isolation," says Audionamix's VP of Production and Product Manager Rick Silva. "We also use our own spectral enhancement process when perfecting vocal isolations for our clients, but using ADX TRAX is our first step." ■

Musikmesse and Prolight + Sound 2014 once again offered a spectacular look at the technology and tools designed for today's music, sound and media producers. This year the annual trade event was held March 12-15 in Frankfurt, Germany, and spanned nine massive exhibit halls covering everything to do with music and sound, all housed in one extraordinarily large complex known at the Frankfurt Messe Hall. More than 110,000 reported registrants were in attendance.

Here, in no particular order, are a few of the more impressive products shown for the first time at MusikMesse/Prolight + Sound.

Neumann's recently announced TLM 107 multipattern microphone is shipping in April 2014 for around \$1,500. The TLM 107 is a high-resolution sound transducer said to capture sound without adding coloration. It is offered in black or silver, with a sleek look as good as it sounds, and comes in a newly designed casing.

Audient introduced its new ASP880 8-channel microphone preamplifier and ADC that includes variable impedance and variable highpass filters. PreSonus ships the redesigned Monitor Station V2 (\$299 street) desktop studio-monitor control center allowing desktop management of analog and a S/PDIF audio source inputs and outputs to up to three sets of monitors, along with four headphone outputs and a talkback mic.

Harman is shipping its new Soundcraft Vi3000 "all-in-one" digital live sound console, offering a host of state-of-the-art features including the internal DSP Soundcraft SpiderCore, a new




Record Plant Names Studio Manager

In March Record Plant Recording Studios President Rose Mann-Cherney announced that Jeff Barnes (pictured) has been named to the position of Studio Manager. In his new position, Barnes is working closely with Mann-Cherney and Vice President/General Manager Jason Carson, and managing day-to-day studio operations including bookings, scheduling engineers, and overseeing technical operations/equipment and project budgets—all while interfacing with producers, recording artists and artist managers.

"Over the years, Jeff has become part of our Record Plant extended family. His work ethic is second to none, and I am extremely proud to have him on our team," states Mann-Cherney. "Having started with us six years ago, Jeff has grown to become a tremendous asset to our organization, and I look forward to working with him in his new position of Studio Manager."

A classically trained multi-instrumentalist, Barnes began his career studying film scoring at USC in 2003. He then attended the Los Angeles Recording School, graduating in April 2008. He started at the Record Plant Recording Studios in May of 2008 as a "runner," rising rapidly over the years within the organization to become Studio Manager.

"I am extremely excited and proud to have the opportunity to take over the position of studio manager for the historic and influential studio that I have been lucky enough to call home for the last six years," Barnes says. "Starting as a runner and working my way up to this point, I have a great understanding of the operation of this facility on many levels and look forward to using that knowledge to bring the integrity of the Record Plant to a whole new level." ■



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On the Cover

By Tom Kenny

SONIC RANCH

A Recording Retreat Designed to Inspire



Photo: Alan Esparza

The 47x36-foot, 22-foot ceiling "Big Trucking Room," attached to the Neve room, pictured on this month's cover

Vibe is one of those versatile descriptors that can mean nothing or everything. It can be used to describe a person, place or thing in the generic, or, when attached to a modifier, become more specific, as in a "funky, New Orleans vibe." It can be attached to an event, like a Clive Davis after-party, or a unique piece of art, an individual rock star or a scene a la Brooklyn. It can be so overused that it loses its luster, yet can sometimes be the only word that fits. At its simplest, it describes a moment in time. At its most complex, it describes a total experience,

one that is just there all the time. Sonic Ranch has vibe—all-caps, boldfaced, italicized Vibe.

It starts with the structure itself, a 1930s hacienda with foot-thick adobe walls and exposed rounded logs for beams, from the nearby Lincoln forest. Then it climbs up the walls with a mishmash, juxtaposed explosion of fabrics from around the world that unexpectedly works throughout the complex, broken up by numbered lithographs from the likes of Dali, Miro and Chagall, along with an eclectic collection of art from India, Colombia, Argentina, Mexico and the American Southwest. The vibe continues outside

in the three-sided plaza, tile-framed pool, 80-year old grape vines, 2,000 acres covered by pecan orchards, and star-filled, big-sky country, at a Border-bordering nexus of Tex-Mex culture.

That's the environment, a distraction-free destination studio complex 30 miles east of El Paso, with eight guest rooms in the hacienda, with 20 more in five additional houses on the property. Since opening with a single A room in the early 1990s, its evolved into a five-studio, turnkey operation, songwriting to mastering, under the direction of owner/director Tony Rancich.

A West Texas native, Rancich is the quiet



Control and tracking rooms at the Adobe Studio

Photo: Alan Espurza



Marco Ramirez's mastering suite, which includes a rare, signed (!) Rupert Neve/Billy Stull Masterpiece

Photo: Alan Espurza

EXPANDING THE VIBE

In the beginning, the late 1980s, there was Studio A. Having outgrown his recording space in El Paso, Rancich found the current property, lured in by a wing of the hacienda that sunk a few feet into the earth and a few years later became Studio A. Producer Howard Steele, owner of Studio 55 in L.A., helped locate the SSL 4000 Series E/G (Black Series EQ), two large iso rooms were added, and by the early 1990s Sonic Ranch was in business. It remains the favorite spot for many repeat customers.

Those early days were mostly local and regional acts. Then a few well-known British producers hooked in early, people like Stephen Short, Colin Richardson and Neil Kernon. Rancich credits their faith in the place and the clients they brought—most notably Kernon and Short, who flew in more than 150 projects from around the world—with making the later expansion possible. It was a lot of heavy music, rock music. At the same time, inquiries began to come in from Mexico, particularly Chuy Flores bringing in the band Jumbo and many others. The room stayed busy; there was even demand for more.

One of those clients, in 2001, was Marco Ramirez, who was producing and recording his own band. Ramirez had been a freelance engineer and artist in Mexico since 1985, working with many top acts, but he had never seen anything like the gear and environment at Sonic Ranch.

"I had never been in a big studio like this," recalls Ramirez, who never left after that initial session and now serves as studio manager and mastering engineer. "It was a dream, all the equipment I would read about. I always dreamed about that sound on the vocals, and it was the first time I had heard something that good." Ramirez would go on to record three projects for Ministry and two by the Revolting Cocks, among countless other records. He's also proven instrumental in connections throughout Latin America, from Mexico to Colombia to Argentina.

creative force behind Sonic Ranch. He jumped into music early, started recording at 15 and, after various incarnations, found his studio home on a ranch in the Rio Grande Valley. He is self-taught and well-versed in philosophy, psychology, art, wine, world cultures, and countless other topics. He also runs the pecan ranch and horse farm. He is the consummate leader-by-example, rallying all who work there to pick up a hammer, trap a raccoon or help cook dinner. The style choices and vision are his.

"In building out the studios, to me, the atmosphere and vibe was as important as the equipment and acoustics," Rancich says. "It needs to inspire. All the rooms are different, so it has to do with mingling all these esoteric elements, from fabrics to lithographs to vintage consoles and outboard. Find the pieces, and find which pieces go together. As we put together rooms, there's a lot of experimentation in design. It's like tracking or mixing a song."

By the time Ramirez came onboard as house engineer, it had become clear that there was enough demand to justify expansion. Rancich brought in noted designer Vincent Van Haaff, whom he had first hired to redo A's control room in 1998, on the recommendation of Joe Chiccarelli. There was no linear plan in place, but one did come together through a series of synchronous events, starting with demand for a larger tracking room.

By 2000 work had started on the Neve studio (in a separate structure, 100 feet from the hacienda), with room for up to 65 pieces in the vaulted-ceiling, variable-acoustic live room and a spacious, comfortable control room (with two iso booths!), pictured on this month's cover. The vintage 80-channel Neve 8078, with 31105 pres/EQs, dates back to the West Coast Motown studio, later to Madonna, then Yoshiki at Exstasy. Ramirez's mastering room came online in 2002.

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Left to right: Ulises Beltrán, Justin Poirer, Jiro Villanueva, Asdrubal Sierra, Wil Abers, Raul Pacheco

OZOMATLI

Bright Days for Eclectic L.A. Groove Band **By Blair Jackson**

Famously energetic and fabulously eclectic, the L.A. band Ozomatli shows no signs of slowing down after close to two decades of practically nonstop action. The group has taken its dynamic and infectious fusion of rap, rock, funk, reggae, Latin, jazz and other styles all over the world—sometimes as cultural ambassadors sponsored by the U.S. State Department—including far-flung destinations in central and southeast Asia, the Middle East, North Africa, Australia, Mexico and South America. They've played many big and small U.S. festivals (Bonna-

roo, Coachella, etc.), regularly headline in clubs, theaters and assorted venues all over the country, and have landed songs on film soundtracks and TV shows. It's a wonder they ever have time to record an album.

Indeed, producer/engineer Robert Carranza, who has helped record every Ozomatli project since their first EP in 1997, says that the group's latest studio effort, *Place in the Sun* (Vanguard Records), had to be cut over a long period of time in between the group's tours and other obligations. However, "that actually worked to our advantage," he says, "because it gave us

some perspective on what we'd already done, and we ended up changing some things and making them better."

To hear Carranza and guitarist and singer Raul Pacheco tell it, making an album the Ozomatli way can be quite a complicated process. Some songs start with a sequenced rhythm part, others with a synth bass, or a guitar or keyboard; there's no fixed way of working, but once the ideas start to flow, everyone participates in developing them, both on their own and as a group. They share group writing credits throughout.



"At this point, everybody in the band has a studio" Pacheco says. "That's what was interesting about this record—the disparate sources and disparate quality of ideas."

"There are so many people coming at you with different stuff," Carranza adds with a laugh, "but the guys have become very adept at Pro Tools and actually recording sound. One of the things I keep telling them is, 'Look, sometimes the sound doesn't matter.' It's the intention of the sound. The feeling that it gives you is more important than whether this trumpet sounds really good or not. I'm a big believer that it's more about the inspiration than the microphone. If the microphone's there, it will capture the inspiration coming through. And that happens a lot with them."

Pacheco adds, "When you bring all these sources to a guy like Robert, it gives us a lot more options: Here's this demo vocal, but it sounds kind of trippy and cool—is there a way to use that? Or this sample? Or this guitar part? What we did on this record is we made these demos and then we'd go in and play, as a band, at a place like EastWest [in Hollywood]—beautiful, great-sounding rooms—and then we'd find we could layer some of that demo stuff underneath it. So, on songs like 'Prendida' or 'Tus Ojos,' there's a mix of electronic and live stuff, and finding that balance is something Robert really has a skill for. Sonically, those are some of my favorite things—it sounds really new, but you can also tell there are live instruments in there. That mix is current and cool and exciting."

Carranza estimates that about 80 percent

of the album was tracked in the Neve console-equipped Studios 1 and 2 at EastWest, with most of the rest of the work (and the mixing) done at Brushfire, Jack Johnson's solar-powered studio in an old L.A. craftsman house, where Carranza has a room equipped with an SSL AWS 900 console. (Carranza has also engineered and mixed many projects for Johnson, as well as such artists as Mars Volta, Sublime, Los Lobos and ALO.) One song on *Place in the Sun*, "Brighter," was produced by Dave Stewart.

Texturally, a number of songs on the new album are dominated by decidedly retro-sounding synths and keyboards, contributions from the creative minds of multi-instrumentalists Uli Bella and Asdrubal Sierra. "On this record," Carranza says, "I'd say about a third is soft synths, a third is real Moogs and other hardware-based keyboard stuff, and then some of it from the iPad—from GarageBand or whatever. Again, for me, the inspiration is more important than the source of the sound, so it was like, 'Great let's use that!'"

There was much experimentation along the way, looking for the right instrumental textures for each song—whether it's the '40s-sounding horn section on "Echale Grito"; the electrified and fuzzed Cuban tres guitar on "Burn It Down"; the pulsing, jacked-up electronics on "Ready to Go"; or what sound like dueling Farfisas on the sunny title track. There's a lot going on in these songs, yet somehow they never sound cluttered, and the detail doesn't intrude on the fundamental simplicity of the group's approach, which emphasizes bright melodies, solid hooks, contagious rhythms and positivity at every turn.

Pacheco says, "I think what's made us be successful in front of large crowds that have no idea who we are, and also on our albums, is that we're ultimately a dance band. People like to move and dance; rhythm is the key natural human element of it all. We have a crazy energy, especially live. On records, too, we want to keep it interesting, with a lot of different styles, but always keeping some momentum, because we're a groove-oriented band and always have been. We want to take the listener on a journey." ■

ERIC HUTCHINSON'S 'PURE FICTION'

Nick Radovanovic mixed Eric Hutchinson's infectious new pop album in Skies Fall Studios (Kenosha, Wisc.; skiesfall.com). Though the project seemed daunting at first, Radovanovic says it fell into place pretty naturally. "He basically said, 'Here are the songs, do your thing,'" the engineer says. "When I opened up the first song, 'Tell the World,' the session had 98 [Pro Tools] tracks! Twenty-five of them were drums and percussion. I thought, there is no way there will be room for all these tracks in this mix. But as I dove into it, every new element complemented the next."



Photo: JUCO

"Tell the World," an anthemic-sounding song that pokes great fun at the way people only Facebook-share the good times, features elegant layers of vocals, horns, acoustic guitar strumming, drums and hand-claps. "What is incredibly special on these songs is the diverse range of instrumentation," Radovanovic says. "One song will have wailing trumpets and a saloon-type piano; the next will have a huge string section and a drum line."

Radovanovic monitors on Focal Twin6 Be's and works mainly inside the box. "The song 'I Don't Love U' starts with a dirty acoustic guitar, but when I first opened the session, it was actually a clean acoustic," he says. "I wanted to make it pretty nasty from the get-go. This song just calls for it; it's a rocker. [McDSP's] FutzBox was my go to plug-in, not only for the guitars, but also for vocals and drums. It can be used on pretty much anything if used tastefully. Another super-useful plug-in that I used on this record is the [Waves] C4 Multiband Compressor. Eric's vocals loved this thing. He has a lean, soaring voice. [The C4] brought out that air that really makes it shine and pop through a mix." —Barbara Schultz

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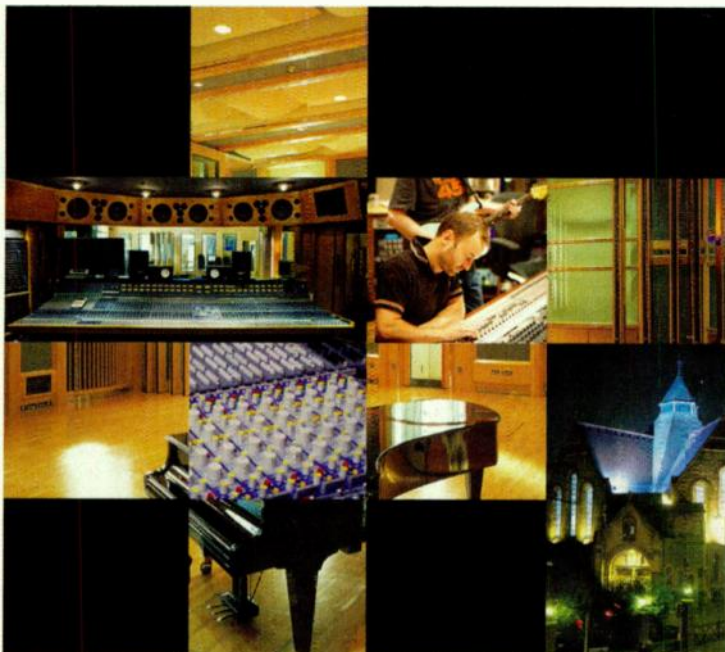
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THE STORY OF THE FOCUSRITE STUDIO CONSOLE

By Tom Kenny



Audio engineers today primarily associate the name Focusrite with high-quality audio interfaces and mic preamps, a reliable and musical means of getting audio into a computer via USB, Ethernet, FireWire or traditional analog. The range of the company's products employ iPad control, Dante networking and most forward-looking technologies you can think of. But modern technologies don't appear out of nowhere, and 25 years ago Focusrite was a much different company, emphasizing a much different product line.

In a sense, the Focusrite story parallels the changes in the recording industry as a whole. When Phil Dudderidge purchased the assets of Focusrite from Rupert Neve in 1989 (the company was founded by Neve in 1985), he inherited the legacy of the famed ISA 110 and 130 modules, along with the Forte console. After re-establishing production of the outboard line, he and a small group of engineers, led by Crispin Herrod Taylor (today of Crookwood), set about designing a streamlined version of the Forte, with a no-compromise, don't-worry-about-cost-now commitment to quality. "It nearly bankrupt the company," admits Dudderidge, with a sigh and a laugh, at the January NAMM premiere of the documentary film *The Story of the Focusrite Studio Console*.

Only 10 Studio Consoles were ever made. The market had changed by the early 1990s, and eventually so would Focusrite. But the history of that console development forms the very basis of the company, so in order to celebrate 25 years in business, Dudderidge and his team went back and traced the path and story of each of the 10 consoles—to Ocean Way and Conway and SST in the States. To BOP Studios in South Africa and to a bedroom in Valencia, Spain. They went to four studios in Tokyo. The documentary was released last month in conjunction with a Dream Recording Weekend Contest at AIR Studios London, for which the original

ISA 110 channel strips were designed, produced by Guy Massey.

"Everyone from the company was sitting around a table in the High Wycombe HQ in late 2012, discussing the idea of a 'heritage project,'" recalls Chris Mayes-Wright, producer and director of the film and in global artist relations at the company. "We felt it would be a shame if the story of Focusrite's rich heritage went untold and got forgotten. The concept of a video documentary following the 10 Studio Consoles was raised. It was decided that to do the story justice, we should tell the whole story of the consoles—why they were made, who bought them and why, and where they are today."

The 10 very human stories form the framework of the film, and they are all rich and compelling, but in the beginning it was all about technology. Rob Jenkins was a recording engineer at the time and did some testing for DDA, another console company. He joined a core team of engineers at Focusrite in October 1989, six months into the development of the Studio Console. Today he is director of product strategy.

"We had two main objectives," he says. "Minimize noise and distortion. The ISA 110 design is dominated by the input and output transformers. I spent a year recalculating the resistor values of each op amp stage in the channel strip to get the right balance between noise and distortion and heat. I then refined the mix bus system to improve the grounding and the hum cancellation. During the installation process I would tune out the mains hum of each mix bus until the noise floor was pure white noise. The net result was a quiet and pristine-sounding console."

Throughout the film, studio owners and engineers express their passion for the consoles, and their sound. The trip to Botswana and BOP, through the South African veldt, feels almost out of time, while the insights from Jack Joseph Puig at Ocean Way bring some glamor. There is a touch of humor surrounding the current location of Number 6 in a bedroom of producer Victor Castellanos' parent's home in Valencia, and a bit of pathos and human spirit at SST Studios in Weehawken, N.J., where, nearly in real time, Mayes-Wright traces the destruction of a board in Hurricane Sandy and the hunt by owners John Hanti, David Hewitt and Billy Perez for replacement parts, eventually found in a garage in Austin, Texas, the remnants of the Conway Studios Studio Console. A bit of detective work. A great story.

"There was no script," Mayes-Wright ways. "It's impossible to script something like this with all the twists and turns. The idea was to make a film that everyone can enjoy, whether they're into recording or not. The common themes we developed while shooting were: loss, hope, love, respect, evolution and rarity."

"I'm really pleased that the concept of the obsession surrounding the consoles has been captured," Jenkins adds. "There was a gang of us at Focusrite that for a few years in the early '90s literally did nothing but build and refine that console, it was a lifestyle. Now you see people like the guys in SST going through the same process again to keep the console alive. They have the same obsession. I look back on those days as the happiest in my professional life because of the people I worked with. I learned so much in that time. The console was my apprenticeship and my foundation in the industry and company I love." ■



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Midnight Oil's guitar arsenal, in Alberts Studios' drum room during the making of Diesel and Dust.



Photo: Gary Gray

That tick-tock creates its own unique tension, in concert with the blasts of the horns and drums. "That's something Warne was brilliant at—coming up with a really unique sound," Gray says.

The "Beds Are Burning" sessions were tracked to two Sony 3324s. The band laid down basic tracks live. Gray says that Alberts afforded good sightlines between the main tracking room and adjacent bootlis. Lead vocalist Peter Garrett sang a scratch vocal in the control room; he would overdub his leads and backing vocals later.

"A lot of the guitars and bass tracks we kept were those original live takes because they had so much gusto in the playing," Gray says. "The Oils were a very powerful guitar band, and they had an amazing collection of vintage guitars to produce so many different, contrasting sounds. The paisley Telecaster was my favorite!

"On Martin [Rotsey] and Jim [Moginie]'s guitar amps—I think they were Vox and Fender, because I remember there being at least one AC30 in the studio—I had a go-to setup that I still use today: a Sennheiser 421 and a 57 right next to each other so that both capsules are phase-aligned, and a Neumann U 47 about three feet back. I had done an album with Ken Scott earlier in my career, and he taught me a lot about phase with microphones. I was lucky to have had some great teachers."

For Garrett's lead vocals, Gray and Livesey tried a few different microphones and ultimately settled on a Neumann TLM 170, into a Teletronix LA-2A. "I remember what he looked like standing out in the middle of the live room dwarfing that mic, because it's quite small and Peter's a big guy," says Gray.

In the choruses, Garrett's extraordinary voice is complemented by Hirst's harmonies. "Robbie is an amazing singer in his own right," Gray says. "Peter and Robbie did the backing vocals together, and then we doubled or tripled them to make them nice and fat sounding."

"I think the bass player, Giff [Peter Gifford], also sang on that," Livesey says. "It was a conscious decision to use their backing vocal capacity to its fullest extent. Rob is really good in the high registers, and the two guitar players, Jim and Martin, were great in the deeper registers. It was definitely a strong part of their sound that so many of the band members had unique voices."

The horn section from the band Hunters and Collectors—trombone player Glad Reed and French horn player Jeremy Smith—was also over-

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~ TapeOp



dubbed. Gray mainly remembers that they were double-tracked, and that it made Reed's trombone sound "fat and beautiful."

Diesel and Dust was mixed at Alberts on an SSL 4018 E Series console. "I remember that punch was really important with that particular track," Gray says. "We used the Quad compressor on the SSL for the overheads, the rooms. We patched it so we could take the Quad out of the main bus and use it as a separate stand-alone compressor."

Another piece that saw a lot of use during the mix was a Bel BD-80 sampler/digital delay that Gray still owns. "That was one of the very first samplers," Gray says. "If you listen to that entire album, all the delays that you hear were that BD-80. We'd do stuff like return that delay back through an EQ channel—just a mono delay—and filter all the tops and bottoms out using midrange to tune the delays into the track. I still use that technique today. Or we'd put that onto some type of chorus—probably in a [Yamaha] SPX90. Peter Garrett loved that delay, and he'd always say to me, 'You're going to use your Bel, right, Guy?' And I'd say, 'Yeah we are, Peter. The Bel goes on everything.'"

The final track showcases the marvelous gifts of a great rock 'n' roll band and the sonic creativity of Livesey and Gray. In Australia, the song not only became a Number One hit, but also increased awareness of injustices to Aboriginal Australians. In the U.S., listeners were fascinated by the beauty and power of the music, and by a video that depicted the band playing in the outback, with Garrett's commanding voice and larger-than-life presence front and center. "Beds Are Burning" went to

number six on the *Billboard* Hot 100 chart and entered the Top 20 on the Mainstream Rock and Dance charts.

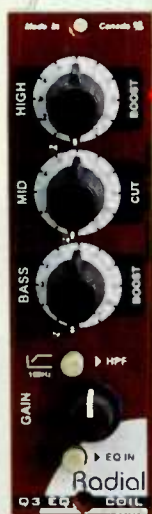
Midnight Oil disbanded in 2002, when Garrett decided to focus his energy on a political career. He went on to represent the Australian Labor Party in a succession of government posts, including as a member of the Australian House of Representatives and Minister for the Environment, Heritage and the Arts. The band re-formed in 2009 to perform along with numerous other top Australian artists at a benefit to help bushfire victims.

After completing *Diesel and Dust*, Guy Gray engineered recordings for Patti Smith, Cyndi Lauper, Lime Spiders, David Bowie's Tin Machine and many others. In August 2013, he accepted a permanent position as an in-house producer/engineer back at Studios 301 Sydney.

Warne Livesey continued working with Midnight Oil on and off through '02, eventually relocating to Vancouver, B.C., where he has a studio. He's made six albums with Canadian artist Matthew Good, and most recently produced up-and-coming Australian rock/folk artist Kim Churchill. For him and for Gray, the late-'80s period was formative in terms of production style; they were becoming increasingly inventive and ambitious with studio technologies that would later become simpler and commonplace.

"That time period was the beginnings of sampling and digital technology. Electronic-based pop dominated the charts," Livesey says, looking back. "The challenge we set was to make a rock record that was also contemporary and progressive." ■

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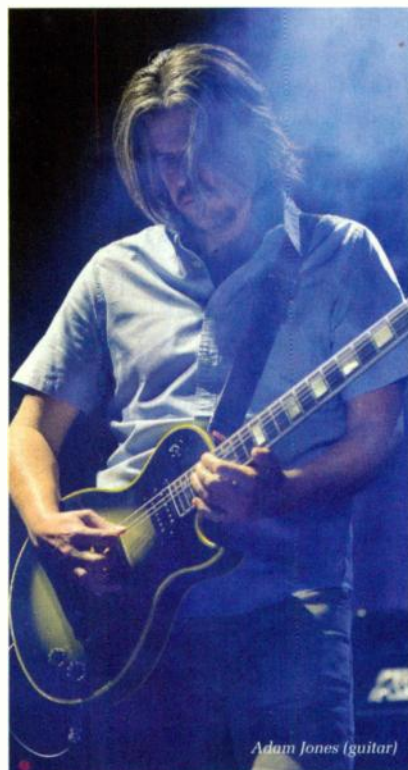


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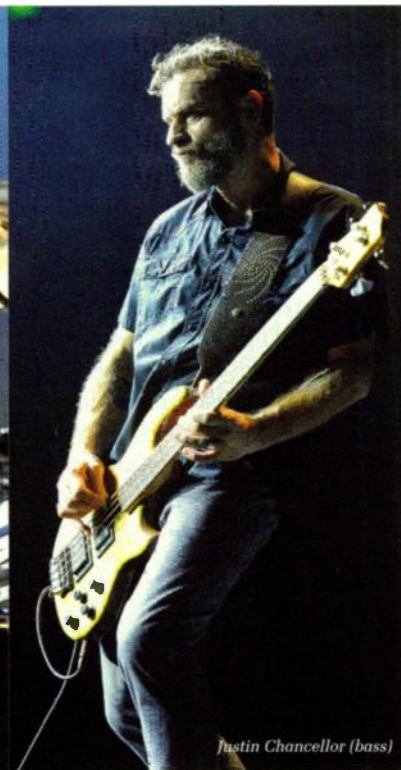
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TOOL

Audio That Supports Raw Power, Tight Arrangements, Dramatic Visual Effects

Text By Matt Gallagher // Photos By Steve Jennings

In mid-March *Mix* took in an electrifying pair of sets along with a packed house in San Francisco's Bill Graham Civic Auditorium from Los Angeles' powerhouse art-metal band Tool—Danny Carey (drums), Justin Chancellor (bass), Adam Jones (guitar) and Maynard James Keenan (vocals). This was one of two shows in BGCA from the quartet amid a brief West Coast tour, which sees Tool reemerge for the first time since the summer of 2010. Although this tour does not support an album release and Tool has not introduced new material, rumors have been circulating in early 2014 about a possible new album release.

The band treated longtime and new fans alike to songs drawn from across its catalog, spiced up with some new arrangements, musical surprises, Carey's debut performance on a modular synth rig, and moments of improvisation. Additionally, Tool stepped up the visual component of their show, creating an intense stream of jarring, nightmarish computer-generated imagery accompanied by laser beams and occasional confetti blasts in order to fully immerse the audience throughout each set.

"The visual element is always at the heart of this show," says veteran front-of-house engineer Alan "Nobby" Hopkinson, "obviously with

audio being the silk stitching to complete the purse! Ha. We try to position audio to facilitate what the video and lighting departments are trying to create. All three departments have worked together for the 13 or 14 years I've been here—some [for] longer—so we have a pretty good understanding of each other." Hopkinson has been involved with live sound since forming a small P.A. company with his friends and band mates that served the punk rock community in London circa 1980, and joined Tool's audio crew after mixing *Rage Against the Machine* for their *Battle of Los Angeles* world tour in 1999 and 2000.

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Photo: Steve Jennings
Front-of-house engineer Alan "Nobby" Hopkinson mixes Tool on an analog Midas XL4 (at left) and a Midas PRO2C for overflow channels



Photo: Steve Jennings
Monitor engineer Beau Alexander mixes on a DiGiCo SD7

Tool is carrying full production for these West Coast dates—including mics, in-ear monitors and a custom-built rack of outboard gear—and Eighth Day Sound is providing the audio system. The P.A. system is a d&b audiotechnik J-Series line array. The main hang comprises 16 J8 and four J12 loudspeakers, and six J-Sub cardioid subwoofers per side, while the side hang comprises 12 J8s and four J12s per side. Eighteen supplemental B2 subwoofers on the floor help deliver and enhance the band's thunderous aural assault. "We carry enough P.A. to beat the crowd hands down, so there is no fight [with excessive audience noise]," Hopkinson says.

Hopkinson mixes Tool on a Midas XL4 analog console and also carries a Midas PRO2C to handle overflow channels and mix the opening acts. Hopkinson mentions that he tried mixing Tool on a Midas PRO9 digital console "a couple of years ago but somehow couldn't get the 'Tool' sound out of it. I mix many other bands on digital consoles, but [digital consoles] just didn't sit right in this camp. So I went back to the XL4 and all the associated gates, comps and FX you have to bring along, too." The FOH rack includes a dbx 120XP Subharmonic Synthesizer, two TC Electronic Dynamic Digital Delays, Eventide Ultra-Harmonizer, Yamaha SPX900 and Lexicon 224X Digital Reverberator.

Although lead vocalist Keenan literally eschews the spotlight and positions himself in an unlit space on the drum riser to stage left of Carey's drum set, fans expect to hear and understand the song lyrics, and the nuances of his vocal performance. Hopkinson says that Keenan recently began using a Telefunken M80 and that his vocal channel is "quite effected in places—some modulation, some harmonizing, some delays, a small amount of compression through the Avalon 737sp. His vocal is supposed to kind of sit in with the mu-

sic, not always stand out above. It can be extremely difficult in particularly ambient halls to get [Keenan's vocals] above the band's level.

"All guitar channels are summed through a pair of groups at FOH and fed through a pair of dbx 160A [compressor/limiters] just to keep a hand on them," Hopkinson says. Guitar and bass cabinets are miked with Heil PR 40s and PR 30s, with a Heil PR-31BW on Jones' Marshall cabinet. Carey's massive drum set sees SM57s (snare and rack toms), PR 40s (floor toms), Beta 91A and PR 48 mounted inside the kick drums; overheads/cymbals take AKG 414s and 451s, and Audio-Technica AT4050s.

Monitor engineer Beau Alexander joined Tool in 2006, just prior to the release of the band's *10,000 Days* album, as an independent engineer following five years working for Clair Brothers. "For this tour we are carrying a DiGiCo SD7 console with d&b wedges and side fills," Alexander says. "Maynard is currently the only person on ears and he is using JH Audio earpieces with Sennheiser G3 transmitters. For Danny we have a left and a right stack of two d&b Q subs and a single top. Justin has two d&b M2s in front of him and one J-Sub with a single J8 top to the left of him. Adam has three d&b M2s in front of him and a J-Sub with a single J8 top to the right of him.

"Each band member likes to hear a mix of everything going on," Alexander continues. "Each song may vary a little: a little more of this, little more of that, depending on what they are playing. I mix everyone who is on wedges pre fader and mix the in-ears post fader on the VCAs. We are using an onboard reverb and two bass chorus [effects] for some vocal effects."

How do you deal with the stage volume and crowd noise? "We make it louder," Alexander replies. "Ha. Our stage volume is pretty substantial. We all do a great job of working together."

ON THE ROAD WITH NEKO CASE

Singer/songwriter Neko Case has added another leg to her tour, promoting her Grammy-nominated album *The Worse Things Get, the Harder I Fight, the Harder I Fight, the More I Love You*. During this outing, Case and band visit clubs and theaters throughout the Southeast and Midwest with a crew including monitor mixer Bobby Mac and front-of-house engineer Shelly Steffens.



Photo: Neko Case

FOH and monitor consoles—an Avid Profile and SC48, respectively—are provided by Clearwing Productions. The tour is also carrying a Motion Laboratories Power Distro, a small L'acoustics monitor package (115xt HiQ wedges), a mic package that includes Case's preferred Shure SM58 vocal mic, and Radial passive and active DIs. Racks and stacks are provided by the venues locally.

"On this leg of our U.S. tour, I am using the Waves Renaissance plug-in bundle and it's been great," Steffens says. "I send Neko's vocal through the Renaissance Reverb—set to a hall—and also through another channel of Renaissance reverb set to a plate. The plate reverb is then sent to another long hall reverb. The idea is to build as much dimension as possible in the reverb while keeping it sounding as natural as possible.

"I like to roll off a lot of the high end in all the 'verbs so that they highlight the beautiful, deeper tones in Neko's vocals," Steffens continues. "I've also been experimenting with the Waves Non-Linear Summer plug-in inserted on Neko and Kelly Hogan's vocal channels, and on the vocal bus. The Summer adds a lot of depth and presence to Neko and Kelly's vocals."

—Barbara Schultz

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THE PIXIES



The Pixies—Black Francis, vocals/guitar; Joey Santiago, guitar; David Lovering, drums; Paz Lenchantin, bass—performed at the Fox Theater in Oakland, Calif., in early March. The band carries a d&b audiotechnik J-Series P.A. provided by Eighth Day Sound, based in Highland Heights, Ohio.



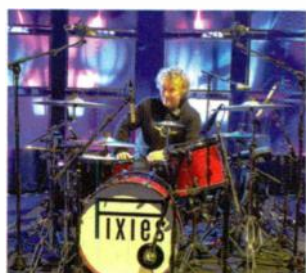
"I'm using an Avid Profile, which has been my preferred digital console since I started doing live gigs around 2008," says Pixies **front-of-house engineer Miles Wilson**, who got his audio start as an assistant engineer at Sound City in Van Nuys in 2001. "I'm a pretty big believer in not over-processing, so quite a few of the 26 inputs I have on the Pixies have no EQ or compression on them. The ones that do get processing are mostly handled with stock DigiRack plug-ins plus a few McDSP plug-ins. I also have no problem using the in-line processing. In fact, I love the gates and find them very 'usable' compared to a lot of other digital desks.

"For my external rack gear, I have a BlueTube stereo mic pre by PreSonus that I use for ambient mics. I use an old Lexicon PCM 42 delay unit for Charles' [Black Francis] vocals, a PCM 60 for drum reverb, a Yamaha SPX2000 for reverbs, and an old Valley People Dyna-Mite compressor that gets used on a drum subgroup."



"I've been using a Yamaha PM5D for the last nine years," says **monitor engineer Matt Jones**. "I've tried every board out there and this one suits me. The reverbs just sound authentic to the Pixies sound. I don't use anything external. All the vocal microphones are Shure Beta 58s, except David's, which is a B56.

"I did a lot of research about what wireless system the band would buy," he continues. "I chose to go with Sennheiser, as I had a close connection to them and I think the RF is better. We have 4 channels of 2000 Series for the band, with a helical aerial, and 4x G3 for the crew and me with an omni. Each has its own four-way DA. I bought the new TTI Scanner to assist me also. As for ear molds we went for the JH Audio JH16s. They sound amazing. It was a big thing moving from wedges to ears for them, and after the initial shock, it appears to have worked really well."



"**David Lovering** plays on a '70s Jasper shell Gretsch USA custom drum set," says drum and **bass tech**

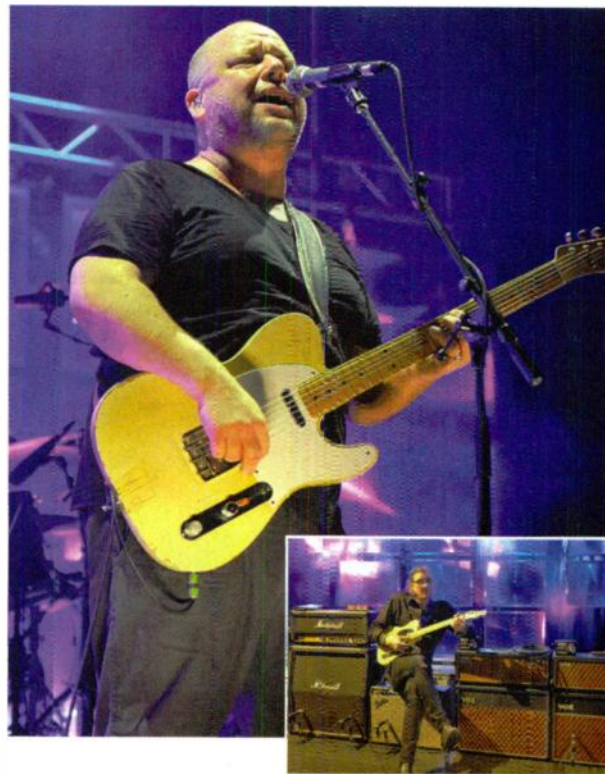
Paul "Chumpy" Knowles. "Microphones consist of a Shure Beta 91 and Beta 52 on kick, SM57 on snare top, Sennheiser 441 on snare bottom, Sennheiser 421 on rack and floor toms, Shure SM81 on hi-hat and ride cymbals, and AKG 414s on overheads."



Bassist Paz Lenchantin uses an Ampeg SVT-CL Silver Face in conjunction with a classic Ampeg 8x10 cab. It's miked with a Sennheiser 421 and a Radial J48 DI. Inset: **Monitor tech Nathan Lamb** and **FOH systems tech James LaMarca** in front of the Ampeg rig.



"**Charles [Black Francis]** uses two mid-'60s Vox AC 30 'piggyback' combos," says **guitar tech Duncan Swift**. "These were the forerunners before amp and speakers were combined in the same cabinet. The white combo is an AC 30 reissue combo—a much later combo—to be used as a spare, using the external out to drive either forward speaker cab. We have Shure Beta 57 and SM57 microphones on them."



Guitarist Joey Santiago uses a Marshall 2205, 50-watt JCM 800 lead series head into a 4x12 slant cabinet, paired with a vintage 1960s Fender Vibrolux—a 40-watt CVR, with 2x10-inch speakers. They're also miked with the Shure Beta 57 and SM57.

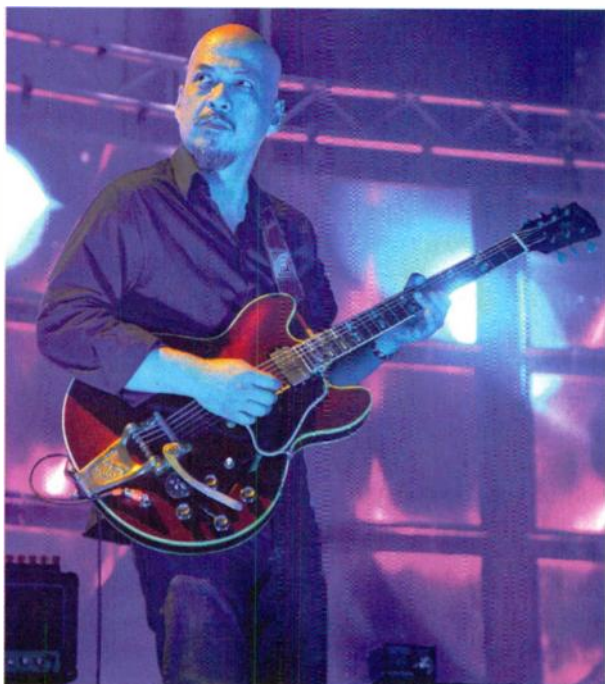


Photo: Jim Bridges/HBO



MUSIC FOR 'TRUE DETECTIVE'

T BONE BURNETT DIGS DEEP FOR EERIE HBO DRAMA

By Blair Jackson

It's been awhile since the ending of a season of a limited TV series has been mourned as widely and intensely as HBO's *True Detective*, which capped its remarkable first-year story arc in March. Here's an example of a show where saying that it's about two Louisiana detectives trying to solve the ritual murder of young woman doesn't begin to hint at the depth and complexity of creator/writer Nic Pizzolatto's eight-hour story—the way it seamlessly jumps back and forth between three eras over 17 years, involves dozens of truly odd, idiosyncratic, but strangely real characters, and uses creepy and lonesome rural Louisiana settings to create one of the most haunting backdrops for a story you'll ever find.

The acting is otherworldly good—it will be shocking if both Matthew McConaughey and Woody Harrelson, as the troubled and temperamentally mismatched detectives on the case, are not nominated for Emmys; neither has been better or more riveting. And the large support cast of cops, family members, girlfriends, bikers, hookers, religious zealots and assorted strangelings is perfect, too. The direction by Cary Fukunaga is imaginative and beautifully paced, Adam Arkapaw's cinematography is striking and artful, and Pizzolatto's character-driven writing—which

is truly the backbone of the show—challenges the viewer at every turn, mixing arcane references, unusual philosophical ramblings and plenty of down-home local color.

And then there's the music, which is almost like another character—or a whole bunch of characters—in season one. Pizzolatto could not have made a better choice to helm the music: Producer/musician/songwriter T Bone Burnett has long been one of the pre-eminent executive music producers (or “curators,” as he calls them) in film, an artist with an encyclopedic knowledge of American roots music, R&B, gospel, old and new rock and much more, and equipped with an innate sense of how to employ those styles in the service of visual storytelling. In the film world, he's perhaps best-known for the work he's done on the Coen Brothers' films *O Brother Where Art Thou* (which earned him five Grammys in 2002, including Producer of the Year) and last year's *Inside Llewyn Davis*, and for his songwriting contributions to films such as *Cold Mountain* and *Crazy Heart* (which won him an Oscar). He was also executive music producer for season one of the acclaimed TV series *Nashville*.

But it's safe to say that Burnett has rarely faced a task quite as involving



and all-encompassing as his work on *True Detective*. Not only did he select each of the more than four-dozen cool tracks by other artists that lace through the series—he was also responsible for the eerie and evocative original music. T Bone's score subtly employs a wide range of dark synth tones, pulses, bursts of percussion, peculiar melodic fragments, and sparingly used instruments—from drums to horns to didgeridoo—often to purposely unsettling effect. He also contributed two original songs—one co-written with Cassandra Wilson called "Sign of the Judgment" (based on an old gospel tune), and "The Angry River," which plays under the end titles of the final episode and features Father John Misty and S.I. Istwa.

"Scoring is something I've wanted to do for a long time," T Bone says in mid-February, the day after the final post work on Episode 8 had been completed. "I started out doing electronic music back in the '60s, and I've always loved that stuff. But there was never really the opportunity for me to do it, and I certainly wasn't going to try to make a straight-up techno/electronica record or anything like that. That would've been ridiculous. But for this material, it was completely appropriate to go to that place. I've been getting more and more into scoring in the last two to three years and I've come to an understanding of it, really. Working with Danny Elfman has been my master's class in scoring. He's so brilliant in his approach."

It was Pizzolatto himself who requested that T Bone be brought on board to handle the music on *True Detective*, "and it makes sense," Burnett says. "We're simpatico. We're very much writing about the same things—self-delusion, corruption, all that stuff."

What was the agreed upon approach to the original score? "The first thing that happened is, since this piece has a beginning, a middle and an end, we talked about approaching it as an eight-hour movie, and having it be a movie score. So I wrote a scene, but [that music] doesn't actually appear in full until the eighth episode. But all the music that happens until the eighth episode is drawn from that theme. I wrote a set of intervals that could be broken down into many different configurations, so the DNA of the melody is in all of the music. Parts of it will appear in a scene, and another one comes over here, but in the end, the whole thing is revealed."

"So the first thing I really did was write a standard, big-time epic movie melody. I started from that place. I went to the climax of the movie and wrote the melody for that and then worked backwards. The original thing was these two four-note melodies, and there are certain intervals that fit together in a certain way. If you take the two four-note melodies and put them together as a puzzle, it creates an extraordinary cluster—a beautiful, tight cluster. That

cluster became the tonality and the over-tonality of the whole piece."

Most of the scoring work was done at Burnett's Electromagnetic Studio in L.A., with one of his longtime engineers, Jason Wormer, handling the technical end, but also deeply involved creatively—collating and arranging the music, with T Bone's oversight, and also acting as the primary liaison with the show's music editor, Shari Johanson, who was in contact with re-recording mixers Leslie Shatz (who mixed a few episodes in L.A.) and Martin Czembor (who worked out of New York).

"It's almost all synthesizers," T Bone says of the score, "and I'm playing a lot of them. Here's the band: Keefus Green [aka Keefus Ciancia] has been playing piano and synthesizer for me for many years; he's incredible! Darrell Leonard played horns and synth EVI and didgeridoo. And Patrick Warren played Mellotron and various electronic instruments. We're all playing electronic instruments or samples, and we're using our own samples."

"Patrick owns a library of all the original Chamberlin tapes, and he also does a lot of bowed metals and hurdy-gurdy," Wormer adds. "That's sort of Patrick's field—Dulcitone, Celeste—those kind of slightly more identifiable sounds."

"As for Keefus, I honestly don't know what some of the sounds are. I'll [email him] and say, 'What the hell is a harp-piano?' and he'll write back, 'Yes!' He has a lot of weird prepared piano sounds, weird string sounds—not your typical Kontakt laid-out [string library] cello, but a cello playing a weird melody he's pitched down three octaves and flipped it backwards."

"So, Patrick is filling in a lot of the melodic stuff, and Keefus is doing a lot of the weird, creepy stuff. Then Darrell is the winds guy: He does a lot of brass—things like bass trumpet—and then he also does a lot of didgeridoo. He uses a conch shell a lot. He also has a thing called a Kahn, which I've yet to see, but there are pictures of it online. It's this odd thing with pipes sticking out of the top of it, but it makes this really distinct sound. You hear it and you think, 'What the hell is that?'"

T Bone's main session drummer, Jay Bellerose, contributed most of the powerful percussion elements, either live (recorded at the Village) or through drum samples he's made the past few years. Many/most of them have been altered in some way, in keeping with the bizarre textural ambience. T Bone also plays atmospheric guitar here and there. The music is recorded to Pro Tools through the studio's API console.

On a typical episode, Wormer says, "T Bone and I will sit down and watch the whole episode with Nic, the creator, and Scott Stephens, the executive producer, and we take notes on what they want to happen. Then we sit down with T Bone and pick some tempos and put either some drums or pulses in. This score is pretty Moog-heavy, so we'll do some Moog stuff to get a backbone laid out. Then, depending on whether Keefus or Patrick or Darrell is around, usually I send that out to them and let them do their own thing, and they all keep in contact with each other. We send everything to everybody and they all get a shot at it, in terms of what they want to add to it. But everybody always knows what everyone else is doing. Everyone has his own aesthetic and the range they take up. So if Keefus gets something, and T Bone and I have already put some drums or some guitar or a melody thing on, Keefus knows that Darrell is going to put some solo brass to cover one area, and Patrick might do the high stuff, so Keefus might just do a little accent work on it. Or vice-versa."

And then you just pick and choose what you want, without regard to their feelings? "Right!" he laughs. "T Bone has this whole philosophy that it's not 'my part,' it's not 'your part,' it's just 'a part.' Everybody's part is equal and doesn't belong to any one person."

"It's an interesting palette of sounds. The brass stuff sometimes has didgeridoos behind it, so it's sort aboriginal noir. There are so many things that aren't really identifiable."

And that lack of specificity and definition is part of what gives the music its mysterious cumulative power, so apt for a series filled with scenes of underlying or actual tension, grim portent and outright dread. Sometimes, as viewers, we feel the music more than we hear it, as if it's an organic part of the soundscape. There are certainly big musical moments, too—Episode 8 is nearly wall-to-wall score, much of it abstract and edgy, used brilliantly to ratchet up the almost unbearable suspense. But the music is never showy or intrusive. It's there, T Bone says, to serve the story and the characters.

The outside songs that T Bone chose for *True Detective* encompass an amazing range of styles and eras, and are used both as source music (coming out of radios, playing at clubs, etc.) and also as "score." And though he likes the songs to have some sort of thematic connection to whatever is happening in the scene—even if it's just depicting a character's mood—he steers clear of obvious or heavy-handed choices. So that's why you'll find a Waylon Jennings, Ike & Tina Turner, Emmylou Harris, Black Rebel Motorcycle Club and Richard and Linda Thompson all threading through the same episode, and in others encounter songs by the 13th Floor Elevators, Wu-Tang Clan, John Lee Hooker, Cuff the Duke, Lucinda Williams, The Kinks, Boogie Down Productions, Vashti Bunyan, Johnny Horton, Grinderman and many more. The wonderful opening credits song is "Far From Any Road" by The Handsome Family.

Interestingly, however, you won't find much in the way of traditional

Louisiana music. "One of the first things Nic said to me is, 'I don't want any Cajun music,'" T Bone says with a chuckle. "And Nic is from Lake Charles, so he knows this territory very deeply. But as far as the tunes go, here's the thing: As eerie or otherworldly as the score is, I wanted the needle drops, or the source cues, to be equally as sort of displaced and disorienting. We're treating Louisiana not as it is or was, but a Louisiana in the realm of *True Detective*. It's a fictional, surreal Louisiana. We're looking for fictional truth."

Not surprisingly, legions of people have searched for the songs and artists they've heard on *True Detective* (tunefind.com has them broken out by episode), and T Bone sounds confident that there will be music releases of both songs and the original score to come. And, of course, the series will have an extended life on Blu-ray (T Bone was recorded for some of the commentary) and HBO's various platforms. This season of *True Detective* is going to be discovered again and again for years.

What will happen next time out with *True Detective* is anybody's guess, but T Bone freely admits he has the scoring bug and plans to pursue that avenue as much as possible.

"I think I'm going to spend most of my time scoring," he says. "I'm very proud of this music. I wrote most of it, and then my guys orchestrated it, but they're also writing, too. And we've started a band now called The Hat and we're going to be a scoring band. [Their first formal credit is on "The Angry River."] There are a lot of things our team can do that I don't need to be there for, so I'm trying to set up a platform for our team to be able to do a lot good work in the future." ■



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BY NICK BATZDORF



Photo: Sherri Stacy Hendrickson

From left to right: Tinson Li (Manager IT Technology) Sherri Hendrickson (Director Broadcast Media and Operations), Stephen Colón (Manager Audio Production) in Control Room "G"

There are no Aeron chairs or hardwood floors at the newly revamped Frank Stanton Studios in downtown Los Angeles. These are radio studios, where all the rooms are small and dry, and the machine room is loaded with floor-to-ceiling racks of networking equipment. It's where American Public Media produces the daily Marketplace series of business news and economic life programs, heard nationally on more than 500 public radio stations by almost 11 million listeners a week.

Putting out seven feeds of talk-oriented radio every day takes some serious choreography, and the workflow and studio needs have evolved a great deal since the program first started in 1989. They're producing more shows, incorporating remote hosts and reporters headquartered in seven other bureaus around the world, and also recording material for radio stations in APM's network of stations.

So five years ago the company began an ambitious project to update all of its studios and make them more flexible—without disrupting the ongoing Marketplace shows. The main thrust of the upgrade was to incorporate IT with all the audio networked through the facility, but they also redesigned the rooms to address a variety of issues.

This is what the studio complex of the future looks like: Everything is IP multicast over the network. It's what Sherri Hendrickson, APM's Director of Broadcast and Media Operations, calls "digital 2.0."

SIGHTLINES

APM started by enlisting the Russ Berger Design Group to plan the con-

trol rooms, studios and edit suites in the Frank Stanton Studios. On this project, RBDG was responsible for ergonomics and sightlines, listening positions, and then acoustics—within the confines of a "sensible" budget. Staff designer Richard Shrag outlines the deceptively simple directive they were given: "Find the right balance of changes that are cost-effective, things that are easy or effective to change and will make a real difference."

That mostly ruled out moving the walls of these curiously shaped rooms, with five and six sides, because this is a leased space. But they did strip the existing rooms down to their shells to start over. And they were able to add three spaces that were previously used for KPCC, the local APM radio station.

Because of the unusual room structures, sightlines proved difficult. Room layouts were rearranged to put the directors and hosts in a better position to communicate with one another. More than that, some hosts like to sit, some stand, but they all want to be where their voices sound best to them in the room. And the engineers also needed to have eye contact.

Those considerations lead the decisions about where to place the furniture and equipment, the lighting, and finally the acoustics. "We're trying to deal with short reflections from locally reflecting surfaces," Shrag says. "Since there are some givens in small spaces like this—from the windows, floor, table, and things like that—we want to take care of the surfaces we have some control over."

That meant fabric-covered absorption on the walls. It also meant covering up some unnecessary windows, which helped correct issues in the



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monitoring environment—such as one speaker being in front of glass, the other in front of a dead wall.

APM now has three control room/studio pairs, four production suites, one edit suite, and one control room with a big video screen in place of a control room. That's used for "host on a rope"—remote hosts in different locations, connected by ISDN over IP.

IP MULTICAST

APM recycled a huge pile of cable pulled from their old "digital 1.0" set-up. The AES switcher is gone, the Studer console with AES and TDIF outputs, most of the analog cable—it's all been replaced with Cat-5 cable and networking equipment.

That's the heart of the redesign: IP multicast. Hendrickson ex-

plains: "It's part of the networking spec of the entire IT industry. We run 16-bit/48k audio throughout the facility with no audio loss, through over-the-counter IT hardware. So we have a large Cisco switch [with special settings and configurations]. It has redundancy—dual power supplies, it sends emails if there are any errors... The idea of IP multicast rather than point-to-point is that it's only streaming once, and everybody can tune in to it so you're not using nearly as much bandwidth."

Every audio source in every studio is on the network, once it's been digitized into an Axia audio networking system. People run Axia iPlay software on their computers, so anyone in the building can listen to the output of, say, Program 1 in Studio G.

"In Axia, you make a big table of sources, all labeled, and what sees what sources is customized," Hendrickson continues. "So a mic in one studio won't interrupt a live host in another one. If I pull up a microphone in one of our studios, it still has your typical dynamics, EQ and compression available, but I can route it anywhere in our facility."

That mic—they use Shure KSM32s—typically runs through a Great River preamp, a Crane Song analog compressor, and then it's digitized into the Axia system at a node point. The engineers do all the other processing with plug-ins in their play-to-air DAW, which will be Dalet later this year.

WORKFLOW

David Brancaccio, host of the Marketplace Morning Report, is in the New York bureau. Kai Ryssdal hosts the Marketplace Midday Report in Los Angeles. The locations make no difference to the production process. Latency over those distances is too short to affect conversations because the IP lines are point-to-point; unlike television, there's no video bouncing up to a satellite and back.

When a reporter files a story, he or she writes a script that an editor uses to assemble the files inside a DAW. The files include a reading of the report, ambience, sound clips, etc., all filed to APM's FTP server.

An editor then assembles a rough mix, often on a laptop, and a producer listens to it on the Axia iPlay software for approval. Next, the editor takes it into a production suite for final mixing—all inside the DAW, listening on Genelec 8050B monitors. Some rooms have Mac Minis running Pro Tools systems available for more elaborate productions, but mostly they're used as backup recorders.

A typical Marketplace show combines elements from many sources, some live, some recorded, local or remote. In addition to the live host, there might be a reporter coming in over ISDN or Comrex Access (both IP codexes), a commenter in APM's New York bureau, yet another in the Washington, D.C., bureau, and transition music.

The shows themselves are mixed live on one of the Axia boards; one element fades out, another is trig-



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Production Suite "H" with AXIA control screen (top), David editor (bottom), ProTools (right)

Photo: Sherri Stau v Hendrickson

The mics in the studios—the Shure KSM32 is a large-diaphragm cardioid condenser—have double pop filters in front of them. Guests are generally directed to move up to the mics. Unlike a lot of network television, voices aren't reflexively highpassed at around 120 Hz.

"Being a business report, being very short and to the point, the Marketplace sound uses some compression and limiting," Hendrickson says. "We don't do it as much as commercial radio does, for sure, but it isn't quite the NPR kind of rolling, rhythmic sound.

"Our shows are very tight," she concludes. "Our morning show is only 10 minutes long, our reports are a few minutes long, so it's straight, punchy and direct."

APM's Frank Stanton Studios is an interesting facility, set up to address needs specific to the Marketplace radio broadcasts. But the IP networking concept at the heart of their redesign applies to most commercial studios. Once audio is on a network, there's no difference between sources in the same building and in the same planet.

That's something to ponder next time you turn on the radio and hear those Korg M1 marimba rolls and Roland TR-808 timbales in the Marketplace theme music. ■

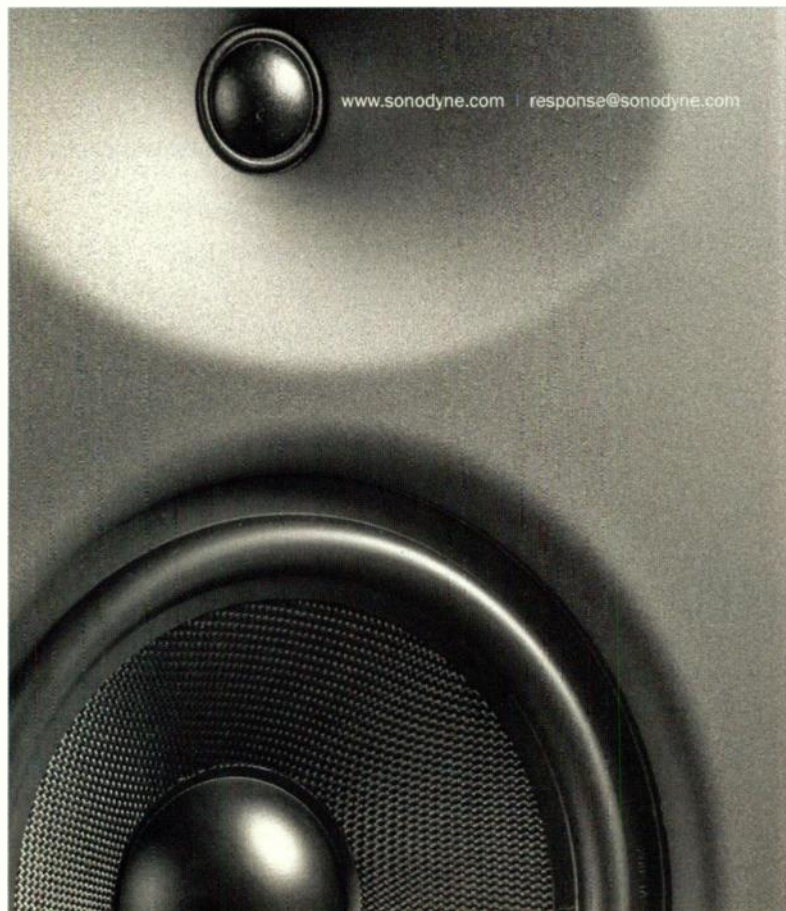
Nick Batzdorf works in journalism, audio and music, and produces reports for Marketplace and other public radio programs.

gered and faded in—but the elements have all been pre-mixed. Transition music and some sound effects are kept in stereo for the Internet version of a show, but once it reaches the satellite dishes on top of the APM building, it's mono. Stereo simply isn't necessary for talk-oriented radio.

SIGNATURE SOUND

Marketplace is a fast-paced show, and the small, absorbent rooms contribute to its signature sound. So do the analog compressors; in fact, live reporters are often routed through them just for the sound.

As with almost all radio production, voices are usually close-miked.



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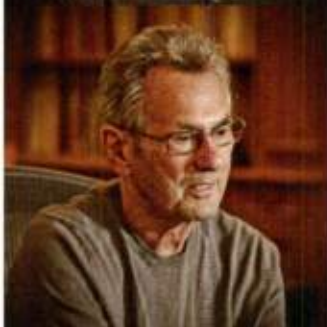
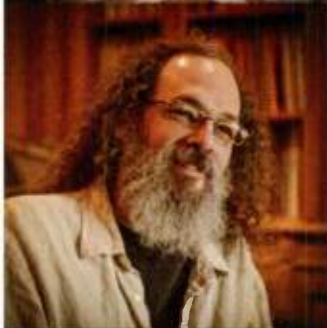
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NATE BARR

—TEXTURE AND COLOR IN TELEVISION MUSIC—

By Gary Eskow

Climbing aboard a used school bus in Queens, N.Y., and driving it 16,000 miles into the heart of South America and back with a friend may seem like a roundabout way to reach Hollywood, but that's the trip Nathan Barr, currently one of the hot scoring composers on the West Coast, took. Perhaps best known for the sonically complex underscores that beautifully complement the violence and psychological confusion which mark HBO's wildly successful *True Blood* series, Barr received a pair of Original Main Title Theme Music Emmy nominations in 2013 (the first composer to be so honored) for his work on FX's *The Americans* and the Netflix show *Hemlock Grove*. He's currently in the process of expanding the Topanga Canyon project studio where he composes and produces much of his work.

He grew up in the metropolitan New

York area, but a business opportunity drew his father to Tokyo when Barr was a child, where he became familiar with musical instruments that lie beyond the scope of Western music. A fascination with unusual color combinations—a human bone trumpet from Tibet, say, paired with a dismantled upright piano—has helped Barr earn a reputation as a composer with a unique sound. When we spoke, he had just finished writing a song with one of rock's great icons.

How did your collaboration with Pete Townshend come about?

The producers of *The Americans* reached out to a number of well-known musicians and asked them to consider the idea of writing a song with me that would be featured in the series. Pete responded that he knew my music, liked it, and would be interested.

I sent him stems, about 10 in all, of my ideas, which I recorded in Logic at 24/48 kHz, and Pete imported them into his Pro Tools rig. He wrote lyrics, a wonderful vocal line, and recorded his vocals along with a guitar track. The result, "This Must Be Done," ended up working beautifully in the show. Pete's lyrics fit the scene they were ultimately featured in perfectly.

Can you describe your compositional process?

I feel my way into about 90 percent of what I write. Composing is about improvising, I think. I'm constantly looking for new instruments—a rare glass harmonica, or a gourd cello, for example—and I start out by grabbing an instrument that seems appropriate to the scene, or character, I'm working with. When writing on a keyboard or guitar, we all get locked into patterns, places where we want to go. Trying to find a melody on an unusual instrument gets me out of my comfort zone. Musical mishaps occur, which often become interesting.

You studied the cello formally?

That's right, and I approach everything from the mental space of a cellist, or guitarist, another instrument that I've spent a lot of time with. I love to write a melody and dress it up with different backgrounds and textures. That really works well for television. I'll develop a theme for a character and then vary it by adding something underneath that's completely different, sonically.

You have to be careful not to go to the well too often, though. If a theme is recognizable to an audience it can become tiresome. I had to watch out for that with the love theme I wrote for the characters of Bill and Sookie on *True Blood*.

Speaking of *True Blood*, you often combine string harmonics with overtones produced by unusual instruments...

Right. Cello harmonics, for example, combined with a waterphone, can yield some very powerful, disturbing sounds.

When you returned from your marathon sprint to South America you decided to head west. Did you have a job lined up when you came to L.A.?

In the mid 1990s, I was touring with a group called V.A.S.T., but the performance bug left me, and I decided to apply for a job—any kind of job in the industry—on the West Coast. I submitted a resume to a company called Addis-Wechsler on a Friday, and the following Monday was on my way to L.A. to enter their trainee program. I was running packages, making coffee and reading bad scripts.

Then I left on that trip to South America. My friend—who was born in Brazil—and I spent four-and-a-half months on the road. I learned how enormous the world is and yet how wonderfully accessible and helpful people can be. Years later I found out that one of the reasons Hans Zimmer hired me was because I took that trip!

What was working with Hans Zimmer like?

Hans is a really incredible guy, and he's extremely powerful in the Hollywood film world. He gave me a crash course in the life of a composer, and technology—I didn't even know what MIDI stood for back in 1997! I asked him, as a 24-year-old, if he'd be willing to take me along on some industry meetings. Before I knew it, I was having ice cream with Hans and Jeffrey Katzenberg.

Hans is a brilliant businessman. The way he expanded his studio operation to include young composers—a ton of them over the years—has helped all of us enormously. Watch what he does with his new venture, *Bleeding Fingers*.



Photo: LA

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You're in the process of upgrading your studio. Can you tell us about the equipment you rely on?

I have a main studio rig and a second studio. Logic Pro 9 is my sequencer in both, but I also operate a Pro Tools 9 system in my main room. I execute some of my own mixes, but my wonderful assistant, Steve Lukach, does a lot of mixing for me.

A Mac Mini is dedicated to video playback. We mix out of the box, and the Mackie Big Knob desktop monitor system frees us from using the mouse all of the time. I'm a big fan of the Dangerous 2-Bus Summing Mixer. The studio equipment list also includes Apogee AD-16X and DA-16X D-to-A converters, a JL Cooper FaderMaster Professional, Millennia HV-3D preamp and Quested studio monitors.

Although my preference is to record live instruments, and I have a Neumann KM 184 that I like a lot, I do have a number of the common Kontakt-based libraries, Spectrasonics' Omnisphere and RMX Stylus, and Rob Papen's Predator. We use Altiverb 6, the Waves Bundle, and IK Multimedia T-Racks when mixing. Project files are automatically synced between the two studios using Dropbox.

What's going on with the new studio?

My current studio is in a converted garage. The new one will include a live room capable of accommodating up to 35 players. I bought a 1,500-pipe theater organ that had been disassembled for 20 years, and it will have a featured spot in the studio. This Wurlitzer organ was built in 1928, one of three built for Hollywood studios and the only one still surviving. It's been used to record scores by Bernard Herrmann, Jerry Goldsmith, and John Williams, among others, and was used on the *Sound of Music* sessions. I'm working with Jay Kaufman, an acoustical engineer and designer, and the architect William Hefner. We expect to be up and running in 2015.

Will you invite us up for a tour when the studio is complete?

Absolutely! ■

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DIGITAL WIRELESS SYSTEMS

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by THE MIX EDITORS

The wireless spectrum crunch continues as we head toward 2015. As veteran broadcast engineer and RF Tech Jeri Palumbo noted in "The Wireless Crunch...Again!" in *Mix*'s January 2014 issue, 2015 will see the "double-whammy" of the potential sale of the 600MHz spectrum, along with "the very real possibility that pro audio could lose exclusive rights to spectrum held in two dedicated TV channels."

Professional audio wireless manufacturers are thus charged with thinking of new possibilities and creating increasingly efficient systems for a hungry and growing market. This month, *Mix* surveys a sampling of the new and currently available digital wireless systems comprising transmitters, receivers and accessories, many of which operate in the 2.4GHz and 900MHz bands. To learn about more system options, visit the manufacturers' Websites.



AKG DMSTETRAD, DMS 700 V2

At ProLight + Sound 2014, Harman's AKG introduced the license-free 2.4GHz DMSTetrad digital wireless microphone system. It offers uncompressed audio transmission, superior RF performance and 128-bit AES standard encryption. The AKG DMSTetrad features an integrated 4-channel receiver, and an antenna front mount kit. With 24-bit/48kHz audio coding,

it provides uncompressed studio-quality transmission and a linear frequency response. It features the DSRTetrad Digital Stationary Receiver, the DPTTetrad Digital Pocket Transmitter and the DHTTetrad Digital Handheld Transmitter, available with AKG's patented D5 acoustics or as DHTTetrad P5 with standard dynamic capsule.

AKG's DMS 700 V2, first introduced in 2011, comprises the DSR 700 V2 Receiver, DPT700 V2 Bodypack Transmitter and DHT700 V2 Handheld Transmitter. The receiver and transmitters operate in a 155MHz (maximum) frequency range within the UHF band from 548 MHz to 865 MHz, ideal for frequency-crowded environments.

AUDIO-TECHNICA SYSTEM 10

System 10 operates at 24-bit/48kHz in the 2.4GHz range and is designed for applications including houses of worship, live performance and corpo-



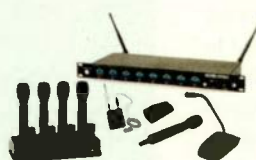
rate presentations. Frequency Diversity sends the signal on two dynamically allocated frequencies, Time Diversity sends the signal in multiple time slots, and Space Diversity uses two antennas on each transmitter and receiver to maximize signal integrity. Up to eight channels may be used together without any frequency coordination problems or group selection issues. System 10 receivers and transmitters offer an easy-to-read digital ID display. The single-channel System 10 includes the ATW-R1100 single-channel receiver and either a bodypack transmitter or handheld microphone/transmitter. The ATW-R1100 is a diversity digital receiver offering volume control along with AF Peak and Pair indicator lights. Multiple system configurations are available, with handheld vocal microphone/transmitters and UniPak body-pack transmitters designed for use with lavalier, headworn and instrument microphones as well as electric guitars.



BEHRINGER ULTRALINK

Behringer's Ultralink ULM200LAV 2.4GHz digital wireless system offers license-free operation with a range of up to 400 feet and packages a ULM200L wireless lavalier microphone, ULM200RS single-channel wireless receiver with dual-diversity antennas and belt-pack transmitter with belt clip. The lavalier microphone connects to a compact body-pack via a balanced 1/4-inch TRS jack. The bodypack and receiver automatically pair together to reduce the system's setup time. Outputs are via unbalanced 1/4-inch TS connections.

The Ultralink ULM202MIC 2-channel handheld wireless system includes a 2-channel receiver and two handheld wireless microphones. The system also operates in the license-free 2.4GHz frequency range. It is capable of up to a 400-foot range of operation, and features an auto-pairing function that automatically pairs the mics with the receiver.



CLEARONE WS800, SACOM DS SERIES

ClearOne announced its acquisition of Florida-based wireless microphone solutions provider Sabine Inc. in March 2014. In ClearOne's WS800 Digital Wireless Microphone System, four models of wireless microphones/transmitters are available with either the 4-channel WS840 or

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MIX REGIONAL: SOUTHWEST

THE TONE FACTORY TO INSTALL TRIDENT SERIES 80 CONSOLE

Las Vegas studio The Tone Factory recently acquired a Trident series 80 (32x24), to be installed in Studio A. "It's an early series 80, not an 80b, which are much more common," says studio owner Vinnie Castaldo. "We actually purchased it a year ago in April. Ed Evans—the original technician from the Hit Factory in New York—is servicing the Trident and going through it for us." Castaldo says the studio also upgraded the power supplies, ICs and caps. Jim Williams of Audio Upgrades did mods to the main stereo module as well.

The Tone Factory purchased the console from a local studio—RMS Recording—that has long been out of business. "They've been a studio since the '70s, and they bought the Trident new," Castaldo says. "It's going to replace our Otari Concept Elite in Studio A. It should be in by early summer."



L-R: Jon Gambino (guitarist/singer for local Vegas band the Solid Suns), Dr. Thomas Brewer (friend of the studio), Curt Hill (Tone Factory engineer), Hugo Castillo (Tone Factory engineer) and Jim Campbell (bassist for the Solid Suns)



Ed Evans working on the Trident.

In other Tone Factory news, Castaldo has been working with a number of clients on various projects, including Mickey Thomas' Starship, who recorded

two tracks from their latest record, *Loveless Fascination*; Tommy DeVito (guitarist/founder of Frankie Valli and The Four Seasons), who is working on a record of traditional Italian songs; Denny Laine (Moody Blues, Paul McCartney & Wings), who is working on his new record *Valley of Dreams*; Louis Prima Jr., who is working on *Return of*

the Wildest; and Gregg Foxx, who is working on the *Renaissance Rock Orchestra*. The O'Jays and Sleepy Brown (of OutKast and Organized Noize) are also working on new material at The Tone Factory.

Wade Martin Studios Builds New Studio and Ultra Lounge

Producer Wade Martin (Britney Spears, 50 Cent, Will.I.am, The Rolling Stones, Katy Capella) is building a third WM Studio and Ultra Lounge, this time on the Las Vegas strip, which will open this summer (Martin currently has a studio in Phoenix and another in Vegas). Attached to the recording studio will be WM Ultra Lounge, an exclusive invitation-only venue where special guests will be able to see firsthand the inner workings of a recording studio through an 18 x 8 soundproof window and interact with A-List performers.

The new studio will be outfitted with Martin's custom next-generation touch-screen console. This new 10-foot console boasts the ability to touch the screen in 42 places at once, and it also has pinch technology. The two 5-foot screens sit in a custom-built Argosy desk, much the same as the first-generation console built in 2007 (pictured). With this Wade Martin Designs console, you can pull up anything on it and work freely, from Pro Tools and Logic to the Internet.

In addition to the custom console, the studio also houses Kush Clariphonic EQ, Neve Portico II master buss processor, Chandler LTD-1 EQ/pre-amp, Adam S3A monitors, SSL X-Rack module, Lynx Technology Aurora AD/DA converters, and Dangerous Music Monitor ST input source switcher/speaker/cue system/talkback system/headphone amplifier.



SESSIONS: SOUTHWEST



L to R: Chris Squire, Al White, and Geoff Downes of Yes in Studio A

rapper Knoc-Turn'Al recorded vocals for an upcoming project in Studio D, with Micheletti engineering...Rapper Los recorded songs in Studio D for his upcoming album *Bad Boy*, with JIGG engineering and Tyler Nervig assisting.



Jimmy Eat World



Joe Bonamassa at Studio at the Palms



SonicPush owner Kevin Mary in the Control Room

Angel Family Films producing...Mary engineered and directed the music for the TV series *Hollywood Makeover*, produced by Boat Angel Family Films, with additional engineering by Connor Hurley.



latest album, *Shalosh*, with Leader producing and engineering...Jazz group Area 25 worked on new material, with DeCozio producing and engineering.



engineering...Beck engineered Alice Cooper's *A Taste of Christmas Pudding* 2013 album, with Williams assisting.

THE SALTMINE STUDIO OASIS, MESA, ARIZ.

Prog-rock band Yes recorded four new songs in Studio A—using a vintage discrete Neve desk with Pro Tools HDX—for their upcoming release, with engineer Phil Schlemmer IX, assisted by Don Salter...Rapper Riff Raff was in Studio A working on Neon Icon with producers Trapzillas, Dolfz and Harry Fraud. Schlemmer engineered the project and tracked a lot of Riff Raff's vocals...Engineer Daniel Micheletti recorded vocals in Studio B for Bret Kaiser, singer for glam-metal band Madam X. The material will be used in a new project for the band's 30-year reunion...Songwriter/

URANUS RECORDING, TEMPE, ARIZ.

Uranus Recording studio, owned by Gin Blossoms vocalist Robin Wilson, regularly plays host to Hot 97.5/103.9's Live and Rare sessions. Recent sessions include Fitz and the Tantrums, recorded and mixed by Weil, assisted by Abrahm Gloria; and the following bands, all recorded and mixed by Weil and assisted by Fearless: American Authors, Barenaked Ladies, Gone by Daylight, Philip Phillips, Jimmy Eat World, Parachute, One Republic, and Gavin Degraw.

STUDIO AT THE PALMS, LAS VEGAS, NEV.

Swedish DJ duo Icona Pop worked in Studio Y with producer Miles Beard and engineer Jason Patterson...Blues rock musician/singer/songwriter Joe Bonamassa worked with producer Kevin Shirley and engineer Mark Everton Gray in Studio X...R&B/pop producer/singer/songwriter The-Dream worked with producer Tricky Stewart and engineer Andrew Wuepper in Studio Y...Producer Bryan McAdams and engineer Rob Katz worked on material for the Rock of Ages Broadway show in Studio Y.

SONICPHISH PRODUCTIONS, MESA, ARIZ.

Northern Light Orchestra—a Christmas super group featuring members and former members of Kiss, Def Leppard, Alice Cooper, Survivor, Steely Dan, Firehouse, Megadeth, Sister Sledge, Quiet Riot, Vanilla Fudge, Winger, Guns N' Roses, Grand Funk Railroad, House of Lords and Whitesnake—recorded the *Ring Out the Bells* EP, with Ken Mary producing and Joe Rusinek and Mary engineering...Gospel artist Daniel Winans worked on new material, with Mary engineering and Winans producing...Mary mixed the soundtrack for the movie *Under the Bridge*, with Boat

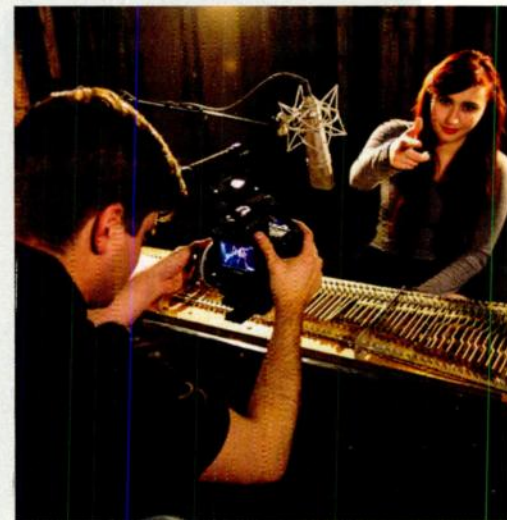
BRICK ROAD STUDIOS, SCOTTSDALE, ARIZ.

Country rocker Blair Mathews worked on new material, with Scott Leader producing and engineering...Jazz pianist Beth Lederman worked on *Las Sombras*, with Mark DeCozio producing and engineering...Pop singer Yasmeen worked on *No More Waiting Vol. 1*, with Rashied Arekat and Charles Dorman producing and Arekat engineering...Contemporary Jewish rock group Sababa worked on their

SOUNDVISION RECORDING, MESA, ARIZ.

Ambient indie band Lydia was in the studio with producer Kolby Wedgeworth and engineer Michael Beck...Rock band Red Dragon Cartel worked on new material, with Beck engineering and Paul Williams assisting...Andrew W.K. was in the studio doing editing for his upcoming release...Classic rock band Deep Black Led worked on new material, with Greg Chiasson and Beck producing, and Beck and Williams

Lazy Ape Studios Installs Custom Diffusers



Joel Cunningham shoots a video for "Waiting on You" by Sarah Moss. You can see the custom diffusers on the wall.

Using the free Internet software QR-Dude (Quadratic Residue Diffuser calculator), as well as making a whole lot of trips to Home Depot, the folks at Lazy Ape Studios in Scottsdale, Ariz. built custom diffusers for its tracking room. "By completely covering two walls of the four-wall tracking room, we now have the flexibility to record very live tracks, while avoiding problems like unwanted flutter echoes and comb filtering," says Jon Suru, studio owner.

"The diffusers are made of wood," says Suru. "The process included creating the schematics, measuring and cutting the wood, assembly, sanding and staining, and finally mounting. The whole process took about two weeks. And all the absorption panels were all custom-made using wooden frames and fabric to hold together the rock wool and fiberglass insulation."

Meanwhile, Lazy Ape hosted a variety of artists recently, including Brock Baker, who worked on his latest EP, *Young 'n' Stupid*; Josh Foster, who worked on *Fluster Cluck*; Jon Scott, who worked on his latest EP, *Late Night Drive*; and Sam Kiles, who also worked on new material.

THE BROOKLYN BOWL LAS VEGAS

Old-School Vibe, Supersized

BY BARBARA SCHULTZ

Production director Jon Dindas refers to his latest project as “Brooklyn Bowl on steroids.” Like the original Brooklyn Bowl, the new Las Vegas edition offers an industrial-style music-performance club, as well as hipster comfort food and a bowling alley.

“But whereas the original Brooklyn Bowl is about 29,000 square feet on one story of an old warehouse, and the second Brooklyn Bowl in London, right outside the O2 Arena, is also about 29,000 square feet, the Vegas venue is 80,000 square feet in three stories,” Dindas says. “Instead of 16 lanes, it has 32. Instead of a 75-seat restaurant, it has a 200-seat restaurant.”

Brooklyn Bowl Las Vegas is part of The Linq, Caesar’s Entertainment’s new dining/retail development, which is situated just off the Strip between Caesar’s Palace and the Flamingo. The performance space features an acoustical and system design developed by Sam Berkow and Jeff Friedlander of SIA Acoustics, in collaboration with Dindas and Peter Shapiro, principal of the Bowls’ parent company, Dayglo Ventures.

“There are a lot of considerations that go into creating a great performance space,” says Friedlander, SIA’s lead designer on the project. “There are even more things that go into designing a great performance space that also has two levels of bowling lanes and a full-service restaurant.”

Not surprisingly, one of the acoustical challenges concerned isolation—between the venue and its neighbors, and between the different spaces within the new Brooklyn Bowl.

“Luckily, the performance space and the bowling lanes are sitting right over the load-in area,” Friedlander says. “But we still needed to address the issue of sound transferring within the space and to the front of the building where there are retailers.”

SIA designed an extensive system of absorptive and diffusive treatments to ensure consistent sound within the club, and acoustical floor details to maximize isolation. For example, there are floating floors for the venue and bowling lanes to prevent the sounds of strikes and spares from disrupting concerts or neighbors. “We used a Kinetics RIM system, which consists of giant rolls of Fiberglas with pucks stuck inside them; this decouples the bowling lane floors from the structure itself. There’s also K-13 spray-on sound absorptive material on the ceiling and on the inside of the bowling lanes down by the pins,” says Friedlander.

Real Acoustix panels on balcony fronts and custom wall coverings that fit with the Brooklyn Bowl’s warehouse style help diffuse sound for the audience. “Along the side walls, you’ll find acoustically transparent perforated metal, and behind that perforated metal is a series of acoustical treatments,” Friedlander explains.

On the audio-production side, Dindas and the consultants spec’d a system similar to the equipment installed in another Dayglo-owned venue,



Photo: Denise Trustillo/WireImage

the Capitol Theatre (Port Chester, N.Y.). Equipment, provided by Technomedia, includes Avid Venue Profile boards at monitors and front of house; d&b audiotechnik loudspeakers and monitors, a solid mic collection from Shure, Sennheiser, Neumann, Earthworks, AKG and DPA; and an iPad-controlled Crestron system to manage networked audio from zone to zone.

“We break down pretty much everything into Performance and House,” Dindas says. “We can run the two systems concurrently, or we have a Show Mode, which will delay the speakers in the zones within the house to work with the array. On other nights, there’s a DJ in the house or we’re playing something off of an iPad. We have 27 different zones upstairs and downstairs—over the lanes in different groupings, over the restaurant, in the landing pad, over the east bar, over the west bar—and we have the flexibility to put different sources in different volume levels in different parts of the room.”

When we spoke with Dindas in February, Technomedia was completing the system installation, and Dindas and Friedlander were getting ready for final testing and adjustments in preparation for the venue’s March 8 opening. Artists booked to perform this spring include Cake, Galactic, Robert Randolph and the Family Band, Trombone Shorty and Gogol Bordello.

“Musically, we’re going to have a nice mixture of rock ‘n’ roll, R&B, hip-hop, and definitely some jam bands,” Dindas says. “We’re also programming for extended stays. If your favorite band is playing Vegas for one night and you’re in Denver or L.A., you’re probably not going to come. But if your favorite band is playing for three nights, everybody loves to take a weekend in Vegas.”

Find complete audio system specs for the Brooklyn Bowl Las Vegas at mixonline.com.

RobairReport

THE N-WORD



By Gino Robair

We got into the audio biz because we enjoy certain aspects of the job. It might have been the creative parts, the joys of problem solving or perhaps the glamor of working with famous and talented people and the opportunity to travel. Whatever it was that led us to this career, at times it feels more like fun than work.

Whether by choice or, more commonly, out of necessity, much of that professional work is freelance. Salaried and benefitted gigs are few and far between these days in every sector of the economy, but freelancing has been the norm in our industry for a lot longer.

It doesn't matter what segment of the trade we are in—live-sound, recording, game audio, sound for picture, composer, musician, teacher, gear designer, software coder—at some point each of us experiences an uncomfortable dip in our workload that has nothing to do with our talent, skill level or previous successes, and everything to do with the volatility of the entertainment business. As a result, one of the words we use everyday begins to take on extra layers of meaning, gaining such power that the mere idea of using it can paralyze us with fear.

That word is No.

People who are new to the music business, and folks with full-time jobs and more conventional careers (e.g., our friends, partners and parents), couldn't imagine how such a common word could hold so much sway over a person. Yet experience has informed us that there can be a sudden dry spell at any minute. Add to that the effects of a serious economic downturn, and suddenly the idea of turning down any gig is completely off the table.

To avoid the discomfort of destitution, we often say Yes to offers that we know deep down inside should get a No. That is how we over-extend ourselves and get into situations that are unhealthy in one way or another. Consequently, knowing when to use the N-word is one of the keys to long-term survival as a freelancer.

GET YER NO-NO'S OUT

There is a point in a child's development—somewhere around the age of 2—when he or she becomes obsessed by the word no. "Are you hungry?" "No!" "Want to go to the movies and eat candy?" "No!" Caregivers intuit the real answer and understand that the little person is exploring his or her own autonomy within a larger developmental cycle. Once kids get that word out of their system, they move on to other stages of development.

Fast forward to adulthood, when the reality of living out of your car is, at times, all but an invoice away. The word no now becomes a strategy, and in many situations it's not clear whether it's the correct one or not. Pay-to-play situations get a no right off the bat. Problematic clients—the ones we know don't pay on time or who make our life miserable—might not always get the negative response they deserve unless there are contingency plans.

In order to survive the ups and downs of the market, successful freelancers accumulate a portfolio of clients. In the early stages, some of the clients will be risky (e.g., potential non-payers and those who try to take advantage of us), but as we work our way up the food chain, we will run across honest and square-dealing folks who need our services. Do the job well and we foster a long-term relationship that leads to additional work, including recommendations to others.

The real test of mastery over the N-word comes when we have more work than we can comfortably handle, even if, as workaholics, we are used to an overloaded schedule. While we can now safely turn down the gigs we know we don't want, it can still be hard to say no to the additional job requests that, perhaps, didn't seem so bad (e.g., don't require much time) at first. Yet, it is often these seemingly easy projects that take longer than anticipated and increase our stress level. Now we must juggle the extra hours the added gig requires along with the regular work we've already committed to.

And then there is the volunteer work, the stuff we do pro bono when we want to give a little back. These requests inevitably arrive when we are at our busiest: a colleague needs feedback; a student needs a recommendation letter; a preferred client needs help; a deadbeat client who has serious cachet (with possible high-quality connections) needs a favor. If we have already volunteered our time extensively, sending a negative reply to people we care about is among the most difficult things we'll do in our career. But the thing that is worse than heeding our conscience and saying no to a colleague when we are overtaxed (and, thus, risking disappointment to both parties) is saying yes and not following through—or, more damaging, falling down on the real money gig.

One of the things that helps us continue to enjoy our work is being able to have enough time to do a good job on everything we commit to. And that is exactly where a virtuosic use of the word no is important. As the projects of our clients wax and wane, so too will our career until we take control of our own destiny by the careful and balanced use of this special word. ■

Tech // new products



DANGEROUS COMPRESSOR

High-End Gain Reduction

Sidechain controls include Bass Cut, Sidechain in/out, Sibilance Boost and Sidechain Monitor. The compressor section offers

two different slopes in the detection circuit, one controlling average level and the other rapid transient peaks. There are also switches for hard/soft knee, and manual attack/release. The meters can be toggled between input, output and gain reduction and there are separate controls for Gain, Threshold, Attack and Release. The back panel offers Side Chain inserts for both channels (XLR), left and right I/O and meter trim pots.

JCF AUDIO MORE AND LESS

500 Series Preamp/Comp/Lim/EQ Combo

The JCF Audio More and Less (\$TBA) is a unique take on audio manipulation. Its controls are simple and aimed at quick results without much effort. It features an XLR Mic/Line input (no switching required), Cinemag 1:2 output transformer, and "Comp" compression control for flat squeeze of program with simultaneous makeup and increasing ratio. The More and separate Less controls offer either high- or low-frequency boost, but not both. Also onboard are a 12-LED reduction meter, Pk1 and Pk0 indicators noting over-peak conditions at two points in the device, pad and phantom power indicators, and yellow LEDs noting either Top or Bottom for the EQ section.



ANTELOPE AUDIO ZEN STUDIO INTERFACE

USB 2 I/O with Preamps, 12 Inputs, 15 Outputs, DSP FX

The Zen Studio interface from Antelope Audio (\$2,495) features 12 Class-A preamps with phantom power, eight mic/line inputs, four mic/line/instrument inputs, eight channels of I/O via D-Sub 25 and four ADAT connectors offering 16 channels of I/O. The unit also features two separately assignable headphone outputs, stereo monitor outs, two TRS inserts and two word clock BNC connectors. The unit is controllable via an application for Mac or PC that also offers flexible routing and DSP-based effects with custom presets.



BBE SM500

500 Series Sonic Maximizer

Available for the first time in the 500 Series format, BBE's SM500 (\$499) is a full-function, +4dB, balanced unit using the same engine as the rack-mount unit. The SM500 promises to brighten, clarify and add fullness by adjusting phase relationships and augmenting high and low frequencies. Features include 1% metal film resistors throughout, low contour and maximum process controls, on/off switch, and clip and signal LEDs. The two controls offer +12dBu boost at 5 kHz (Maximum Process) and +12dBu boost at 50Hz (Lo Contour).

STUDER VISTA X CONSOLE

Nextgen Broad Application Mixer

The Vista X from Studer (priced per configuration) features the Studer Infinity Core, an intuitive user interface with Vistonics and FaderGlow, control of 800 or more audio DSP channels, and more than 5,000 inputs and outputs. Features include VistaMix for automated microphone mixing for unscripted shows, large-scale bar graph metering from mono to surround, and Quad Star technology using four processors for surface redundancy and two completely independent DSP cores "instant" changeover in case of failure. The mixing surface is customizable with side panels coming in black, white, gray and carbon fiber, with dark or light floor stands with two-meter top panel and four armrest color options.



SBS DESIGNS SP-1PRO

2UBE Dynamic Range Controller

Promising to sweeten up and improve the dynamic range of any full-range source, the SP-1PRO from SBS Designs (\$3,090) features bass and treble expanders, Bass & High threshold pots, and control feedback systems to monitor the depth of expansion and prevent runaway operation. The SP-1PRO also features independently controlled front panel Tube Mode controls that are designed to increase or decrease the effective presence of the expansion process triggered by the larger front panel Low & High Thresh pots. Other features include bypass, a headphone preamp with front panel gain control, independent internal balanced or unbalanced switches on the circuit board, master input gain trim and balanced XLR I/O.

ADAM AUDIO SUB15

15-Inch High-Performance Woofer

Capable of extending the frequency range of main and mid-field monitors down to 20 Hz, the ADAM Sub15 (\$3,749) features a 15-inch woofer made of rigid aluminum driven by two powerful magnets, and a 100mm voice coil. The Sub15 promises exceptional transient response, efficient low-frequency performance and undistorted SPL output of 112dB maximum at 1 meter. The Sub 15's PWM amplifier features 1000W (RMS) power with a stated efficiency factor of nearly 90%, allowing it to handle sudden peaks without distortion or overheating. The downward firing bass port has been specially designed with generous dimensions and rounded edges to cancel port noise. The Sub15 is equipped with a volume control (-60dB to +6dB), crossover frequency control (50-150Hz), polarity reverse switch and the ability to drive satellite speakers at full range or highpass-filtered at 85 Hz.



FOCAL ALPHA STUDIO MONITORS

Three Affordable Choices

Focal has unveiled the Alpha Series entry-level studio monitors. The Alpha 50 (\$299 each) features a 5-inch woofer and 1-inch aluminum tweeter powered by 35-watt and 20W Class-A/B amps, respectively. The 12.3x8.7x10.2-inch, 16.1-pound cabinet features an RCA input and sensitivity, LF and HF shelving controls. The Alpha 65 (\$399 each) offers a 6.5-inch woofer and 1-inch aluminum tweeter powered at 70W and 35W. The cabinet measures 13.7x9.9x12.2 inches, weighs 20.7 pounds and comes with the same controls as the Alpha 50, plus an XLR or RCA input. The Alpha 80 (\$549 each) features an 8-inch woofer and 1-inch aluminum tweeter powered by 100W and 40W Class-A/B amps. The 15.6x11.3x13.7-inch, 28.2-pound, front-ported cabinet has the same .6-inch MDF construction and user controls as its siblings, plus XLR and RCA input.

CAD AS16 AND AS22 ACOUSTI-SHIELD ENCLOSURES

Desktop Sonic Isolators

The AS22 and AS16 Acousti-shield stand-mounted acoustic enclosures from CAD feature two designs offering a mobile solution for recording at home and on the road. The Acousti-shield AS22 (\$129) is a foldable enclosure constructed of 16-gauge perforated stainless steel shield mated to 53mm high-density microcell acoustic foam. Its mounting hardware provides exceptional mic positioning flexibility and portability. The AS16 (\$99) offers similar results for instrument recordings or onstage isolation and can be used with a range of microphones, from pencil condensers to dynamic instrument mics, for easy placement in studios or live situations.



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RASCAL AUDIO ANALOG TONEBUSS

If you seek the richness and spacial definition of a classic large-format console for your DAW mixes, then look no further



SHADOW HILLS OCULUS WIRELESS

Mastering-grade monitor controller with wireless Pendant remote, Class A headphone amplifiers, VU metering & talkback



ADAM A7X

Active reference monitor with advanced extended-range X-ART tweeter (up to 50kHz!)



DANGEROUS COMPRESSOR

Simple, transparent and powerful; the striking new dynamics processor from Dangerous levels the playing field



LYNX HILO

AD/DA converter plus headphone amplifier offering control, performance and connectivity never before available



AUDEZE LCD-XC

Featuring exclusive Fazor technology, the LCD-XC may very well be the best closed-back headphone experience you can find



RETRO INSTRUMENTS 2A3

With one of the more sought-after vintage EQs as its model, the 2A3 delivers sweet tube tone with modern flair



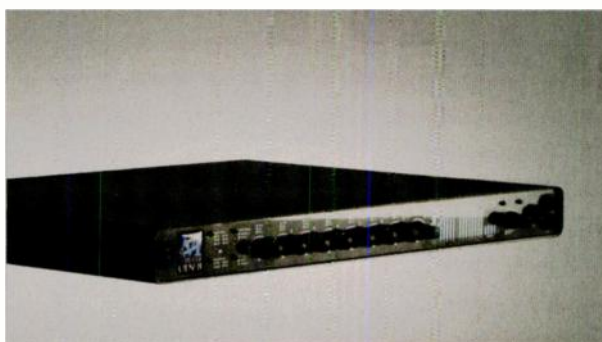
ATC LOUDSPEAKERS 25A

"ATC: Always The Champion. I will not record without them. The best studio monitors. Period." – Lenny Kravitz



FLEA 47 NEXT

Boasting the same specs as their other fabulous replicas, the FLEA Next line just may be the next step for your studio



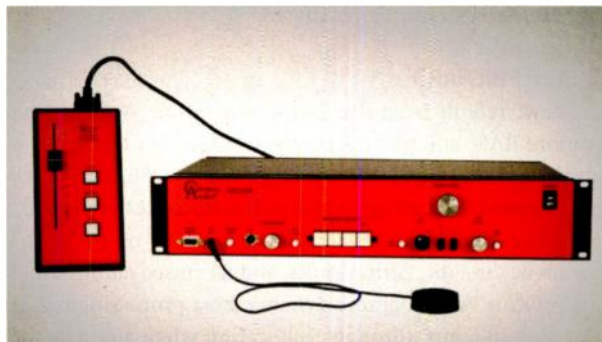
METRIC HALO ULN-8

Perfect for everything from classical recording to mastering, or any user that needs ultimate power and flexibility



BLACK LION B173

A modern rendition of a classic preamp at a legendary price – hear the Black Lion Audio difference



COLEMAN AUDIO RED48

Bringing that larger-than-life console sound to your mixes, complete with monitor control and talk-back functionality



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Tech // reviews

AVID PRO TOOLS 11

64-Bit Operation, Unprecedented Stability and AAX Plug-ins



Pro Tools 11 joins the 64 bit world with a brand new audio engine, fully re-built AAX Native and DSP plug-ins

Through the many updates of Pro Tools, Avid has made great strides to increase the overall strength of the program, with the discussion of a 64-bit operation hovering for a while now. Now in Pro Tools 11, I can confidently say that the future is here, and it sounds amazing.

A BOLD STEP FORWARD

A brand new, rebuilt-from-the-ground-up 64-bit Avid engine delivers more RAM and processing power than ever before, so a user can integrate as many Virtual Instruments (256) and other plug-ins as needed. I added up to four to five instances of VIs and/or plug-ins per channel on sessions I was working on to “push” the program beyond its normal limits, and it cruised along barely breaking a sweat. The program’s dynamic host processing maximizes the plug-in count through reallocation when audio is not present, and will deactivate the plug-in, saving valuable processing power. Pro Tools 11 also uses dual buffers for playback and recording, allowing for lower buffer levels, minimal latency issues and overall added performance.

Pro Tools 11 finally adds the offline bounce feature, something I was always jealous of with my Logic user friends. Delivery speeds at around 150 times faster than online bouncing also includes multiple output sources. This is a big time-saver, as I have clients who want multiple versions of mixes to reference, and this feature lets everyone hear very quickly that their music is translating on a variety of output devices. Pro Tools 11 also includes expanded

metering for HD users, something I found very useful, especially when toggling between edit and mix screens. I’m mindful of how much gain reduction and overall output is happening in my mixes, and having access to metering on dynamics plug-ins per channel and overall broad range metering (VU, PPM and Pro Tools Classic) is a gratifying addition to get a quick visual summary to know I’m staying close to where I want my output levels to be.

Avid did not forget about the film, TV and post communities, and Pro Tools 11’s Avid Video Engine allows users to play and edit a wider range of video formats (DNxHD, RED, MXF, QuickTime, XDCAM, AVCHD) than in the past, and drop them directly into the timeline without transcoding by using the same core engine as in Media Composer. Users can also monitor video playback on a variety of sources such as Avid Mojo and Nitrus DX, AJA and Blackmagic Design. Avid’s Satellite technology is now also integrated into Pro Tools 11, and post facilities equipped with HD will be able to sync and control up to 12 HDX, HD Native and HD TDM systems with Satellite Link and the required SYNC HD interface.

GOING WITH THE FLOW

Pro Tools 11 features the new Avid audio engine which shuts out some legacy

TRY THIS

If you’re using processing as part of your sounds for live tracks, then group the elements of your recorded mix into drums/loops/perc, bass, synths, guitars, and vocals. Select the group to bounce and create WAV files according to your output needs. Use the meters to adjust your track outputs and apply a stereo compressor or limiter lightly to even out each group’s bounce. The offline bounce feature will let you test your tracks quickly and make changes to get your live show sounding as close to studio-quality as possible.

hardware (see the website for a complete list), though it allows Pro Tools 10 to live simultaneously on the same machine. You can also open Pro Tools 5.1 sessions in Pro Tools 11, and save sessions in the current software back to version 5.1.

HD users should refer to the Avid device drivers page on the website to find what drivers they will need to install, as the older TDM and Core interfaces are no longer used for processing. I installed some updated hardware drivers for a Lynx Aurora 16 on my Mac Pro tower, and Pro Tools 11 HD saw the interface right away and was performing as it did before. Pro Tools 11 requires an iLok 2 key and authorization, which allows the user to travel with their key and integrate into any workstation wherever they are.

AAX

The AAX plug-in format was introduced in Pro Tools 10 originally as a 32-bit configuration, and has been a source of debate since. Knowing that 64-bit was on the horizon, many manufacturers saw this coming and got to work on encoding their products for the upgrade. Companies such as McDSP, Crane Song, iZotope, Metric Halo, Massenburg Labs, Toontrack, Rob Papen, Fab Filter and Plugin Alliance (Brainworx, SPL, Elysia, Maag) were some of the first to integrate and improve their products inside the 64-bit AAX format.

I was hesitant to be able to use Pro Tools 11 without my trusted Waves (Native) and UAD plug-ins. The Sound Toys bundle is a major contributor as well to my achieving solid and creative mixes. UAD, Waves and Sound Toys are all now onboard with 64-bit AAX, and performing flawlessly, and my computer was enjoying the extra breathing room.

PROOF IS IN THE POWER

I received the authorizations from Avid in my iLok while preparing for a road trip, so I downloaded the necessary software to my MacBook Air (8 GB of RAM) and was ready to go. I opened up the system usage window so I could keep an eye on how the computer was behaving as I stacked up some processing. The interface has not changed much, but higher resolutions are now an option that I'm sure video and post users will take full advantage of. Like many users, I depend on my knowledge of quick commands to keep a session moving.

Right away I discovered some commands that will make my life that much easier from here on out. Audio, aux, instrument, and master tracks are now accessible by double-clicking the assigned keys related to the track you want to apply. Also, if you double-click the last track you open, it will create another of the same type next in line. You can also now bypass all inserts and sends (A-E, F-J), or all) with single-hand commands as well. Avid has finally provided a new, improved Click AAX, as well, which includes a four-second fade-in feature on the Transport, to protect your ears from louder sections when scrolling through locations.

I pulled up a previous session I had been working on in Pro Tools 10 and started in on a mix that I planned to finish later on my HD rig. I made a few adjustments with clip gain (added in Pro Tools 10) to some audio. I opened a couple of instances of VIs to support the drums, and then added about eight more to see how the computer would deal with them, as well as the 60-some-odd tracks of audio. The CPU bumped up momentarily, then

PRODUCT SUMMARY

COMPANY: Avid
PRODUCT: Pro Tools 11
WEBSITE: avid.com
PRICE: \$299 crossgrade from Pro Tools 10 Native/\$399 from PT9/\$599 crossgrade from Pro Tools 10HD/\$999 from PT9HD
PROS: Improved audio engine, 64-bit, offline bouncing, low-latency input buffer for recording, Avid Video Engine.
CONS: Some Avid hardware and TDM/Core/Accel systems not compatible with 11.

settled in nicely. I began adding EQs and compressors to all the audio tracks, and again, after a moment, Pro Tools 11 was passing audio and I began making adjustments. I found that I was going to be able to finally have mixes move from my laptop to my HD rig with only minor adjustments.

Steven Slate's Trigger is also an important part of supporting my mixes, and I now can use it easily on both rigs. Quick synth parts via VIs I chose to add to help choruses lift were a snap, even with all the additional processing. I found I needed to add a quick guitar part in the bridge and was a little worried about the latency issue with all the processing

I had added. The multiprocessor cores and new dual buffers are now set to default at 1028 for playback, but only loaded when audio is passing through them. The second buffer is controllable by the user, and can be set at very low levels to allow for accurate monitoring on my native rig. I set the buffer to 128, and was able to easily perform the part I was looking for.

Once I got back to my studio I spent some time with the HD installers and found I needed a few more steps to get Pro Tools 11 up and running. I opened the program and right away noticed the enhanced metering feature, which I have grown to rely on more with each new session. The visual aspect allows me to keep an eye on my overall dynamic range, and I don't have to open another metering plug-in on a second screen as I did in the past.

TESTING...TESTING

The 64-bit architecture and new Avid engine really shines on my HD rig, as I tried to push the computer past where I knew it would normally crash, and my Mac Pro tower cruised through almost every test. Higher-sample-rate sessions (88.2 to 192) proved to be a bit more problematic, but I typically am not operating with high levels of track counts at high sample rates. I did a few tests with offline bounces and noticed that some sessions bounced quicker than others, possibly due to the amount of processing being done in the session. Having multiple output sources is a real time-saver and came in handy when I needed to output some tracks from a session to be used for live performance. In the past, this would take me anywhere from 30 to 45 minutes per song; it now only took about five minutes.

As a Pro Tools user for many years, I always look forward to improvements in the program. While a bit nervous about embracing a change in recording technology in the beginning, I grew to depend on it. Now that Pro Tools 11 is here, again I am faced with a change in the platform I have spent the most time using to make music. My initial skepticism with the AAX format was one of caution, as I didn't want to spend valuable hours working to get back to square one. The complete reworking of the engine has not only made the platform more stable than ever, it is allowing me to work more fluidly than ever. Original reports of Pro Tools 11 were that everyone was waiting on third-party software to play catch up. After using the program for the last several months with limited and now full support of my additional tools, I can fully say that Pro Tools 11 has created a platform for all of us to push beyond were the program previously allowed us to go before. ■

Chris Grainger is a producer/mixer/engineer and owner of Undertow Studio in Nashville.

PRISM SOUND LYRA 2 AUDIO INTERFACE

Upgrade Brings Deep Features, Stellar Sound



The Lyra 2 steps beyond the Lyra 1 boundaries to provide many great new features.

One of the hallmarks of the Prism Sound brand has been exceptionally transparent A/D and D/A converters. Products in the company's recent USB interface line have varied in numbers of I/O channels provided, but in each case they offer high-quality mic preamplifiers, digital I/O and monitoring facilities. The second-generation release of the Lyra-family USB audio interface is its most affordable option, built on a foundation of features that should please a variety of users.

The build quality of the Lyra 2 sets it apart from your typical USB interface. Its solid steel chassis and steel wraparound cover panel sturdily and elegantly house the internal electronics.

The front panel features a large, multifunction rotary encoder with green LED indicators surrounding it, an analog headphone level adjustment knob that is also wrapped in green light, and a status display in the middle of the unit featuring two multifunction stereo meters. Using a variety of illuminated segments and changing colors, they indicate level present at the digital or analog inputs or outputs. At first, they seemed more showy than useful, being that they only have four segments. But once I got to know them and was more familiar with the way that their colors changed, they became useful at a glance. There are also indicators showing which connector is assigned to each of the analog inputs, and a clock status indicator for working with digital I/O. Additionally, two 1/4-inch instrument inputs and a headphone jack can be found on the front panel.

GETTING CONNECTED

Back panel connections include two XLR inputs, two 1/4-inch TRS inputs, four 1/4-inch TRS outputs, a coaxial digital input connector and one output, each on RCA type connectors, plus a Toslink input and output, BNC word clock input and output connectors, a B-Type USB connector for Mac or PC interface, a

standard 6A IEC power connector, and an RJ45 connector with no current use, but added with the future in mind.

Each of the two analog inputs can be fed by either the front panel 1/4-inch instrument connector, the rear panel 1/4-inch TRS line level connector, or the XLR mic connector. The input can be automatically selected by Lyra, based on a preset hierarchy, or manually selected with no more than two analog inputs available simultaneously. The RCA connector can operate as a standard 2-channel S/PDIF input, or can accept an AES3 stereo pair. An XLR-to-RCA adapter is provided. Alternatively, the Toslink connector can act as a stereo S/PDIF input or can accept eight channels of ADAT optical input or four channels of high-res ADAT S/MUX signal.

Much like the input section, the co-ax digital output can behave as a S/PDIF output or AES3 output using the second provided adapter. The Toslink can also serve as a S/PDIF output or each variety of ADAT. The whole digital I/O is one of the major points of improvement since the original Lyra. The Lyra 1's Toslink connector could only be used for S/PDIF purposes and it had no coaxial connector at all. The fact that Prism Sound included the alternative connector and then went on to cover nearly every modern digital standard is impressive.

The digital and analog outputs are always active. The original Lyra had only two analog outputs, so this is another big improvement. All the TRS connectors, both input and output, are fully balanced but can also work with unbalanced sig-

TRY THIS

When connecting two digital devices using a digital connection like AES/EBU, S/PDIF or ADAT, a common practice is to unify the sample rates of the two devices by relying on the embedded clocking signal that is transmitted through the common digital audio connection. It is important to note that clock signals transmitted between packets of audio data are typically less steady than stand-alone word clock signals, so when a dedicated word clock connection is offered, it is wise to use it.


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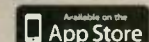
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nals. The unit will automatically detect and compensate when necessary. The headphone output serves as a supplemental path, potentially carrying a signal unique from the other outputs. The interface can use the Mac OS CoreAudio driver, allowing plug-and-play operation without needing software to be installed. In fact, the Lyra 2 can work without a computer connected at all, behaving as a high-quality AD/DA converter, stand-alone mic preamp or monitoring device.

SOFTWARE CONTROL

The Prism Sound USB Audio software is powerful and offers an impressive amount of information and functionality. I didn't find it to be the most intuitive software-based control panel I've ever encountered. It definitely took a few trips to the manual to wrap my head around what exactly was going on, and how to make it fit my workflow. There is a good amount of flexibility regarding how zero-latency inputs can be monitored in combination with signals returning from recording software. Learning the way things were labeled and organized took a little getting used to, but once I did, I appreciated the implementation and the headroom of the clean precise digital mixers building these combined signals.

The top part of the control panel addresses overall settings, like establishing a sample rate and sync source. The sample rates range from 44.1 kHz to 192 kHz with every standard rate in between. Changing the sample rate in the host application will automatically be reflected by a change in the Lyra's control panel. Likewise, changing the clock source from Local to instead lock to embedded clock signals arriving at the digital input or word clock input automatically changes the sample rate of the Lyra 2. The newly added BNC word clock

PRODUCT SUMMARY

COMPANY: Prism Sound
PRODUCT: Lyra 2
WEBSITE: www.prismsound.com
PRICE: \$3,225 street
PROS: Incredible sound and incredible array of features.
CONS: Relies greatly on software control panel rather than hardware controls.

I/O is a welcome addition and would be a fitting sync source for an entire studio. The output can pass standard wordclock, or I suppose if you're interfacing with older Digidesign interfaces you'll be pleased to find a 256x SuperClock setting. The Lyra 2 also offers high-quality SRC for all of its digital inputs and outputs.

IN USE

I started out recording bass through the instrument input, and acoustic guitars, ukulele, and vocals with the built-in mic preamps. The bottom end was fantastic; the top end was clear and detailed. Other A/D converters tout their transparency, but when you actually hear them, they certainly have a personality that hypes certain frequencies. These Prism Sound pre's and converters are truly transparent and clean. Everything I recorded with them simply sounded like reality. I had little bits of Foley that I needed to record for a film, so I couldn't imagine a more perfect tool for capturing low-level sounds. I needed the sound of someone pounding on a wall next door, and someone pounding back in the same room. The detail and transient response sounded so strangely real, it was fantastic.

Having to pop open the software control panel to make level adjustments was a little annoying. I have never been a huge fan of adjusting

a mic pre with a mouse. When it is necessary, though, I feel like a software knob seems, somehow, preferable to a software fader for input gain adjustment. However, considering that the large, continuously variable rotary control on the front panel seems to be a software control, I think it would be nice if a button in the control panel could map the input gain to this knob. I spent a lot of time running the AES3 output of the Lyra 2 to a monitor controller anyway, so that knob was often wasted. Mapping the input gain to it, especially if the inputs could be set for linked stereo operation, would circumvent the need to return to the software control panel every time a gain adjustment is necessary.

NEW AND IMPROVED?

Because of the price, the Lyra 2 is obviously not going to be for everyone. But if you're looking for the absolute best stereo recording interface on the market, this could be it. The sound is simply perfect, and any minor complaints I have about the software certainly take a back seat to the superior sound quality. For A/D conversion of analog masters, mixdowns from analog consoles or even archival vinyl transfers, especially with the newly added RIAA de-emphasis, you'd be hard pressed to find a better solution. For mastering, there is just enough I/O to output a track, process through analog gear, return through impeccable A/D converters, and monitor sample-rate-converted and dithered-down signals through another analog output. For any of these applications, the Lyra 2 would be worth every penny. ■

Brandon Hickey is an independent engineer who works on independent films and music projects.

The advertisement features a collage of audio equipment and software. On the left, two vertical tube modules are shown: the 'FALCON' with a 'LINK' indicator and a 'TUBE COMPRESSOR' section, and the 'SYREN' with a 'REV' switch and 'INPUT GAIN'/'OUTPUT GAIN' knobs. Below these are various other modules including 'TUBE PRE-AMP', 'TITAN', and 'DAVE HILL DESIGNS'. In the center, a screenshot of the 'CRANE SONG LTD.' software interface is displayed, showing 'VINYL EMULATION' settings like 'HARMONIC', 'DYNAMIC', and 'COLOR'. The background of the ad is a dark, textured surface with the text 'Paint the sonic picture you want With 500 series tube modules PT Vinyl Emulation and more'. A portrait of a man is visible on the right side of the ad.

Continued from p. 44

monitoring and control. Its RF spectrum efficiency enables up to 17 active transmitters in one 6MHz TV channel (23 on an 8MHz TV channel), while High Density mode enables up to 47 active transmitters in one 6MHz TV channel (63 in one 8MHz TV channel), with no audio quality degradation.



SONY DWZ SERIES

Sony's DWZ Series 2.4 GHz digital wireless systems provide 24-bit linear PCM digital audio and AES (Advanced Encryption Standard) 128-bit encryption.

Packages include the DWZB30GB and DWZB30GB Digital Wireless Guitar Sets; DWZB50I Digital Wireless Instrument Set; DWZB70HL Digital Wireless Headset & Lavalier Set; DWZM50 Digital Wireless Vocal Set; and DWZM70 Digital Wireless Vocal/Speech Set. Using a space diversity reception system, the DWZ Series achieves stable transmission by drawing upon dual-antenna inputs/reception circuits. These units receive signal over two different paths and automatically select the stronger RF signal for output. Each DWZ series system receiver includes an XLR balanced output and two 1/4-inch unbalanced outputs that can be used to output audio to three destinations at once.



VOCOPRO AIR-NET WIRELESS AUDIO SYSTEM

This 20-channel system from VocoPro transmits audio at 16-bit/48kHz in the 2.4GHz band to remote powered speakers over a range of approximately 150 feet. The included bodypack-type right and left receiver units provide stereo connectivity, and additional receivers can be purchased to expand the system beyond two speakers. The receiver units automatically update to the single-rackspace transmitter's channel, providing instant results when finding the best signal. RCA, 1/4-inch and XLR connectors are included for speaker compatibility. An FCC license may be required.



ZAXCOM TRXLA2

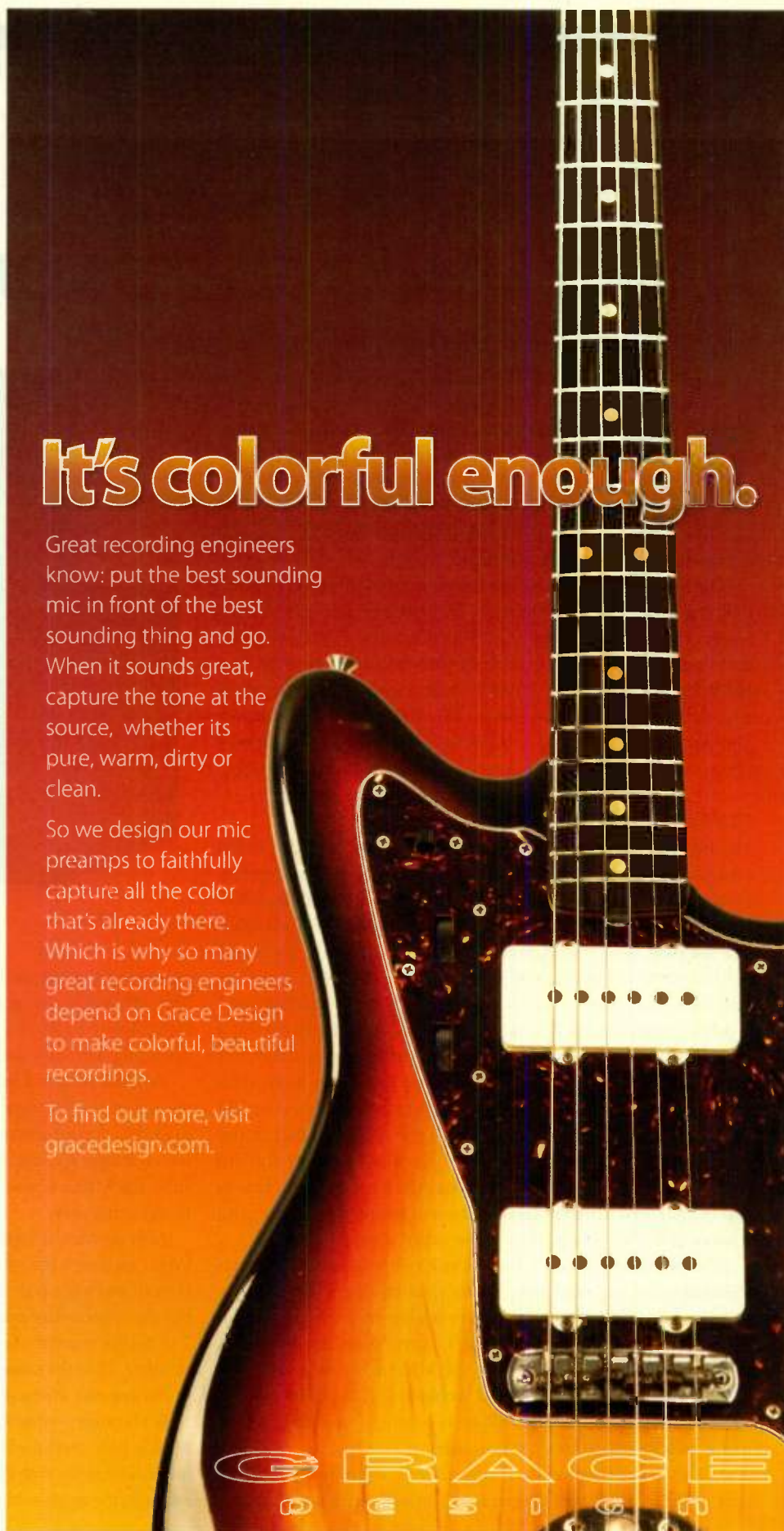
Zaxcom is now offering the TRXLA2 and TRXLT2 bodypack transmitters. They cover 100MHz of bandwidth (four frequency blocks) and feature internal recording via micro SD card, 125mW output power, full encryption, are remote controllable, and have a dynamic range of 126 dB. The QRX200 is a 200MHz wide ENG receiver with a tunable tracking front end filter. n

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MACKIE MRMK3 SERIES MONITORS

Three Affordable Speakers and Companion Sub

Mackie has been a mainstay in the studio equipment world since the early '90s, making its early mark with mixers and making big inroads with the introduction of the HR824 monitors in 1997. The new MRmk3 series of monitors fits right into the company mission of quality and affordability.

The Mackie MRmk3 series comprises three self-powered near-field monitors and a subwoofer. The MR5mk3 uses a 5.25-inch woofer (50 watts), MR6mk3 a 6.5-inch woofer (65W), MR8mk3 an 8-inch woofer (85W), all with a 1-inch silk-dome tweeter. The MR10Smk3 Subwoofer (120W) is built around a 10-inch glass aramid woofer. The enclosures are all MDF, the knobs, switches and jacks are all solid, and nothing feels cheap about the MRmk3 series. All the fine-print specs are available on Mackie's Website.

CONTROLLED ENVIRONMENT

The first stage of testing was done in the professionally designed control room at Eclectica Studios in Austin. The playback system comprises Sequoia playing through my favorite Mytek Stereo192 DSD Mastering Version D/A, through Monster and Mogami cables. The speakers were placed on isolation stands, properly positioned for the room. I listened to many sources over many days; in this review I will mostly refer to Bonnie Raitt's song "I Will Not Be Broken."

I first tested the MR10Smk3 Subwoofer and admit that I was a little skeptical before listening. First, the rating is only 100W, but throughout the testing, the sub's volume was never more than 25 percent. Second, phase choices are limited to only 0 or 180 degrees of polarity shift. I am used to the ability to dial in the phase. And third, the crossover is very gentle—set to 80 Hz, 500 Hz was still very present in the output. All that said, I was able to dial in the sub with every combination of speaker and room, and it was clean, clear and punchy when called upon.

I then set up and dialed in the MR5mk3 with the sub. The system sounded evenly balanced and smooth, yielding a good stereo image. At 1:55 in the Bonnie Raitt song, there is some microphone preamp distortion on the electric guitar fill. On my Neumann KH Series monitors, it's very apparent, but on the MR5mk3s it was not nearly as noticeable and I wonder if most would hear it at all. Overall the sonic detail is good, but not excellent; however, considering that the monitors sell for \$150 street, it's amazing.

At 2:13 in the Bonnie Raitt song, there is a guitar fill reminiscent of Brian May from Queen that is psychoacoustic or phase-



Each of the MRmk3 speakers are rear ported and offer bass boost and HF boost/cut

panned to the left, and the MR5mk3 reproduced it wonderfully. The MR5mk3s without the sub sounded very impressive, solid right down to 40 Hz. The MR5mk3 monitors are very even sounding with only a slight hype to the bottom that is nice.

While dialing in The MR6mk3, I had to bring the high frequencies down -2 dB using the settings on the rear panel, but doing this made the preamp distortion at 1:55 on our test song inaudible. The stereo image was equally as good as the MR5mk3s. Without the subs, the MR6mk3s sounded very even. I can definitely work day to day using these.

Next up was the MR8mk3, the much larger 8-inch woofer model. When used with the sub, it resulted in mud—the low-midrange and bottom end were extremely hyped. The highs and detail were okay, but the stereo image was not reproduced well; the phase panning at 2:13 did not translate. I am afraid that mixing with these would never translate. I had the same result without the sub. They were too hyped in the low end. Pushing these also seemed to badly increase the 800 to 3k Hz range exponentially. None of these observations were subtle. Mackie later confirmed that the sub's crossover is actually a variable lowpass filter. So with the 8s and sub together, if the crossover is set too high, the result could be too much bottom end.

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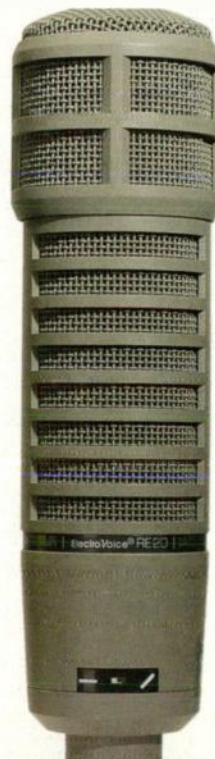
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THE BEDROOM

For this test I set up my laptop with Sequoia running through a \$99 NI Audio DJ 2 USB bus-powered interface using cables from Hosa and Monster. The laptop was on a small table in this 10x12-foot room. The subwoofer sat out in front of the table with the two near-field monitors placed on Quik-Lok stands. The only bad node in the room at my listening position was at about 40 Hz.

The MR6mk3s sounded very good—still missing some high-end detail, but overall they sounded clear, punchy and even. The stereo imaging, however, was gone. The sound just came straight out of the speaker. The phase panning that occurs at 2:13 in the Bonnie Raitt test song was non-existent, but that's the room's issue and not the speakers'—score one for using a properly designed room. The overall sound was impressive and surpassed any other speakers I've tested in this price range. Running the MR6mk3s without the subwoofer yielded a much more boxy sound until I turned on the +2dB boost for the lows, which helped.

Next I listened to the MR5mk3s. Even with the sub I could not tame the monitors' boxy sound, with too much of it in the 900 to 3k Hz range. There also seemed to be a big disconnect between the MR5mk3s and the sub; the sound never seemed to gel. Moving the crossover point on the sub up to 180 Hz helped, but at the cost of the stereo separation and

PRODUCT SUMMARY

COMPANY: Mackie

PRODUCT NAME: MRmk3 Series Studio Monitors

WEBSITE: www.mackie.com

PRICE (each): MR5mk3 \$199; MR6mk3 \$259; MR8mk3 \$329; MR10Smk3 \$449

PROS: Excellent value. Good choice for A/V and edit bays. Clean and clear subwoofer. Input capabilities.

CONS: No LF cut adjustments. Only balanced 1/4-inch outs on the sub to feed the satellites with.

image, as the sub produced a strong level up past 2 kHz.

The MR5mk3s by themselves with the bass boosted to +4 dB sounded very good! Bass extended down to 50 Hz before dipping out, partly due to the node in the room, I'm sure.

I tested the MR8mk3s without the subwoofer, and they completely overwhelmed this room. I also heard a lot more phase and room issues; there was a lot of phase cancellation from 125 Hz down to 55 Hz. I'm not sure whether this is due to how the speaker is designed and ported, but they did not work in this room.

THE FINAL VERDICT

I have been to many home studios and heard many monitors that are priced at \$500 or less, and have rarely been satisfied. In my opinion the MR5mk3 and MR6mk3 are at the top. The MR10Smk3 subwoofer? I'm still loving it, as I bought the test unit. The MR8mk3 always seemed overwhelming and way too hyped. If you are in need of good monitors, the MR5mk3 and MR6mk3 should be at the top of your list. If you have yet to add a subwoofer to your system, or are looking for a new one, the MR10Smk3 is spot on! ■

Tim Dolbear is a producer, mixer and mastering engineer at Eclectica Studios in Austin, Texas.

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Continued from p. 13

Then in 2004, Rancich purchased a neighboring ranch, and with it a century-old adobe structure that today is, naturally, called the Adobe Studio, about a mile from the main house. Serendipitously, the 40-channel Neve 8088 from Dusty Wakeman's Mad Dog Studios became available. In and around the same time, back at the hacienda, the in-house team, based on designs by Van Haaff, gutted the garage in the hacienda and constructed a mix room, with a 64-channel SSL G/G-Plus running at 240 volts.

There are either Augspurger/TAD or Tannoy double-15 mains in each of the rooms, and enough outboard gear to run another five studios, along with a large mic closet and a vintage instrument/amp collection to rival any, with a recent penchant for old synths. They have everything modern that you might expect, too.

"We had more demand than we had time for the one studio," Rancich recalls. "So it became a matter of, 'If we build another studio, will they come?' I prefer the Ralph Waldo Emerson quote, 'If you sharpen a knife, people who need a sharp knife will come.' So it was a matter of building it out to what people wanted. Great vintage equipment is always in demand. And we realized there would always be a demand for a real studio with great rooms. But we had to make each room as good as the other ones. Different, of course, but just as good."

MULTIPLE INFLUENCES

Concurrent with the expansion of the space came an increase in the variety of projects. Heavy rock and Latin Christian turned into British, Italian, Argentinean, Colombian, Mexican pop and a noted uptick in American indie. On the day Mix visited, southern songwriter/artist Charlie Mars was in Adobe with Billy Harvey producing, Nina Diaz from Girl in a Coma was mixing with Manny Calderon co-producing/engineering, new singer-songwriter Sidney Wright was in the Neve room with writer/producer Stefano Vieni and engineer Alex Ponce, overseen by manager/producer Arthur Penhallow Jr., while engineer Yamil Martinez was working with Colombian Christian artist Alex Campos. The Dirty Heads, a reggae/hip-hop group produced by Rome Ramirez and engineered by Charles Godfrey, had just left. Most come together at breakfast, served to order by a wonderful cook, then retreat to their projects, bumping into each other throughout the days and weeks. Those who want to be alone can be.

"I love to take bands out of their comfort zone and their normality," says British producer Jason Perry. "I like it to be like an adventure, something inspiring and different. Something that they'll never forget. These are musicians, so the music is the easy part. Let's make it special and get away to the desert, immerse ourselves in music, no distractions. Then the food, the heat, the insects, the sky, the desert sand, the pool, the buildings, and you're right on the border of Mexico. There's just an amazing clash of cultures there."

That variety of artists and producers—from the Yeah Yeah Yeahs, Charlie Mars and Sublime With Rome to Flogging Molly, Zoe and Whitey Morgan—

coming into a common place certainly benefits the studio, as the best form of sales to date has been word of mouth. But the variety has also provided a true post-graduate, real-world education for assistant engineers, as they learn techniques and styles from a constant stream of visitors.

Charles Godfrey was working at Guitar Center when he was hired eight years ago as a drum tech, moved on to assisting, and recently engineered the Dirty Heads record, and he's worked with the Yeah Yeah Yeahs, who have done two records at Sonic Ranch. He also produced nine projects last year. El Paso native Manny Calderon graduated Full Sail in 2008, then interned/assisted at Westlake in L.A. for three years before coming home to assist at Sonic Ranch. His first gig was Mexican super-act Zoe. His second project was a record for Girl in a Coma; last week he was co-producing GIAC front-woman Nina Diaz on her solo project. He's also worked with dozens of others. Sonic engineer Jerry Ordonez engineered the new Zoe record, and Zach Mauldin engineered projects for Bob Treachad's Cat Food Blues label.

"They have an opportunity here to work with some of the greatest producers in the world, and they are all different," Rancich says. "So you get to borrow from all of them and put those tools in your arsenal, so to speak. Now Manny, Charles, Jerry and Zach have these opportunities and are becoming formidable themselves. There's a great community here, and people all help each other. Artists end up writing with each other, or meeting a new producer. Things that get put together here tend to then take on a life of their own." ■

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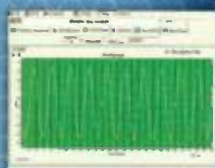
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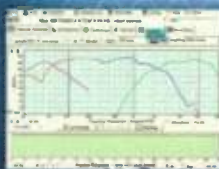
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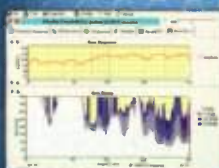
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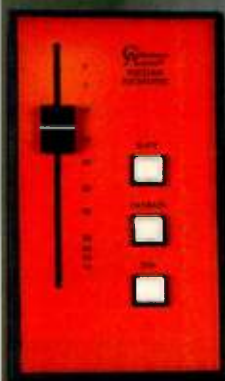
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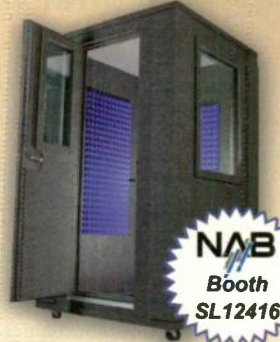
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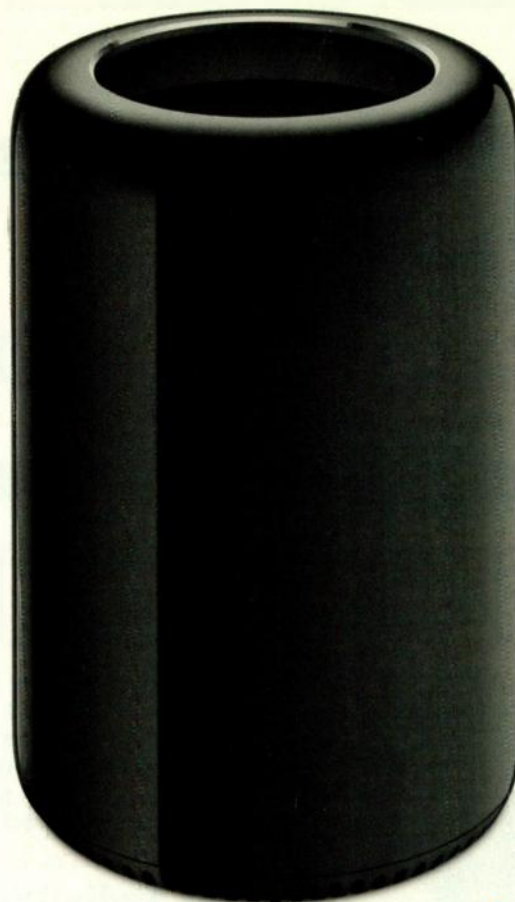
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TechTalk

MetApeel



By Kevin Becka

Metadata is like a banana peel. It looks great on the banana, but once it's separated, no one wants to own it. Who will create it? Who pays for it? How do we manage it? Who collects it? Why should I care? What's that smell?

I recently watched Marc Geiger's (WME) Keynote at MIDEM 2014 where he laid out his vision of the future of music delivery. By now, everyone should know that file-based delivery of music and movies is over and streaming is it. Geiger's keynote (on YouTube) will change how you think about the future—and it's all driven by metadata. Users experience content through portable devices, which is ultimately trackable, so the quality of the metadata connects directly to your wallet. Without creating excellent tracking data, artists, performers, songwriters, commercial or project studio owners, producers, engineers, assistants and indie labels could lose \$\$, awards and new work. Consider it an investment.

Is the artist's cut for streaming revenue out of whack? Sure! There are always difficulties and negotiations as new pies are divided. I'm sure you've seen "My Song Got Played on Pandora 1 Million Times and All I Got Was \$16.89." Right now, touring and merch sales are driving the industry, but if Geiger's right, and you can't help but know he is, this will change. The current misalignment of priorities (artists and writers need to get paid) shouldn't take the spotlight off what's important: Music is the fuel and metadata is the engine. (Also check out TheTrichordist.com: Artists for an Ethical and Sustainable Internet for extended discussions on piracy and equitable music delivery.)

What about the sound of streaming music? Even quality snobs like me can't argue that streaming content sounds awful because that is changing. I've written before about new back-end solutions for better conversion from portable devices. Just a week before I wrote this column, Liztic LLC entered into a partnership with HDTracks with the intention of bringing high-resolution audio to everyone through Liztic's cross-platform music technology. In the press release announcing the partnership, David Chesky says, "I was really impressed when I saw that Liztic could play back high resolution audio through a smartphone connected to a digital-analog-converter."

What about the streaming experience? It's better and better. The "legacy" players are Spotify, Slacker Radio, Pandora, Songza and Turntable. The latest in the game are Samsung's Milk, and Beats Music. I recently signed up with Beats, downloaded the app to my phone, and I'm listening to it as I write. It's a curated experience and is elegantly de-

livered. Today, I started at the Curator tab, flipped over to Downbeat where I listened to Herbie Hancock and Miles Davis on *Let There Be Fusion*, then jumped to KROQ's *The Good, The Bad, and the Pierce: Music I Run to* where I heard "Climbatize" (The Prodigy), "Alive" (Daft Punk) and "Breed" (Nirvana). To cool down I navigated to the Activities tab and chose the After Party at Drake's House and flipped through Marvin's Room (Drake), and 15 other songs. What makes it so good? A great GUI powered by metadata. The quality will surely come.

I ran into John Spencer from BMS/Chace at a recent event at the Pearl-Cohn Entertainment Magnet High School in Nashville. Pearl-Cohn is a fantastic collaboration between educators and heavy-hitter organizations, individuals and companies like NARAS, Harman and local Nashville engineers like Jeff Balding, Chuck Ainlay and many others.

John and BMS/Chace have been immersed in metadata for a long time now. Recently, they have been working with the Library of Congress on a NDIIPP grant-funded project to create an XML schema specifically for the collection of technical, descriptive and performer/role information. Progress is there, but it can seem maddeningly slow. There's still not a common platform (although it's close), and it's proven tough to get DAW manufacturers and others in the production chain to jump onboard.

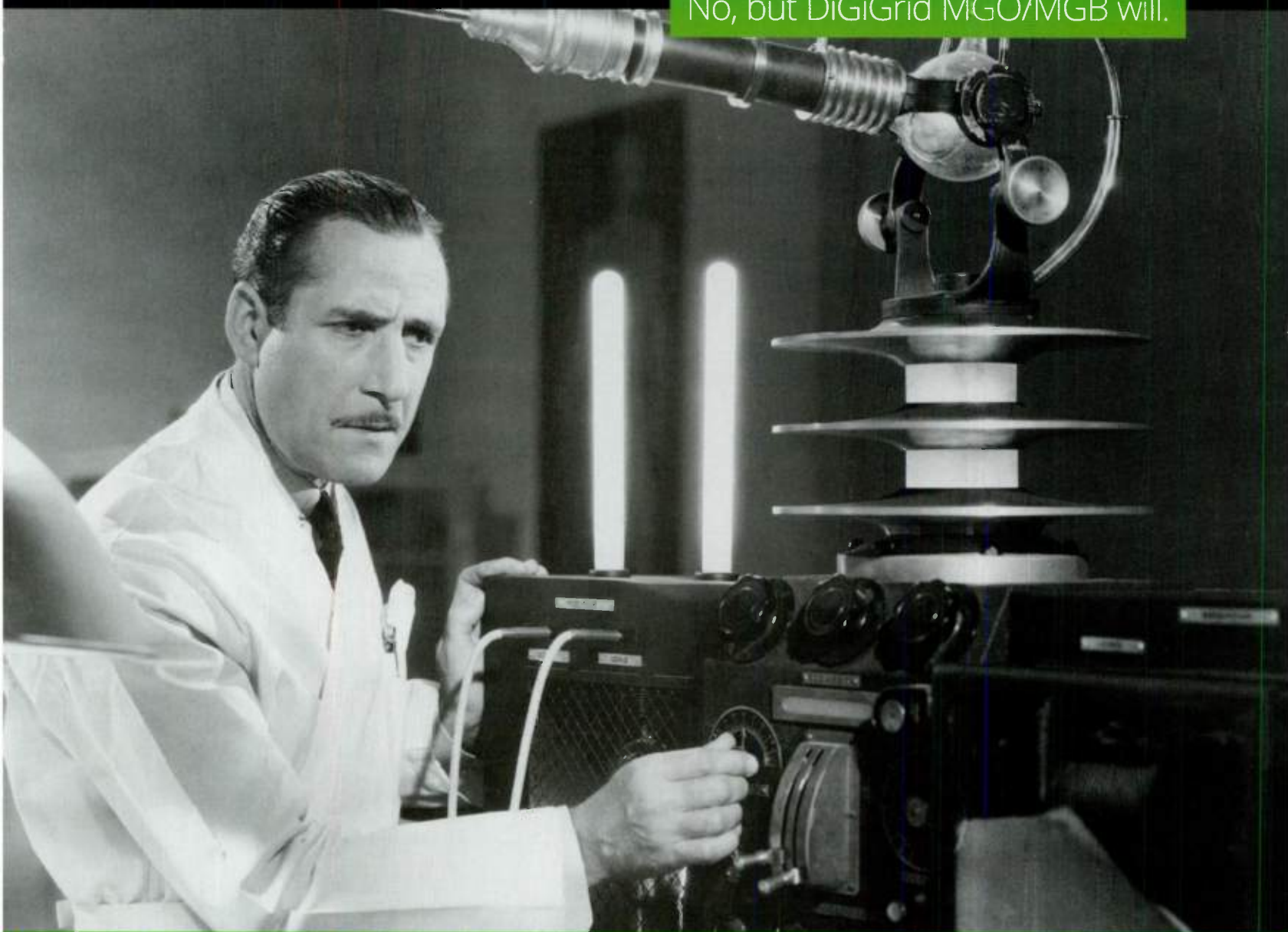
What's new? Last year was a major milestone when DDEX (ddex.net) created the Studio Metadata Working Group, with the idea that the richest and best metadata is usually captured early in a project. Once that happened, BMS/Chace and the Library of Congress moved the intellectual property created from their project over to DDEX. One of the hang-ups I saw early on was who will be in charge of creating data, where will it live, and how do you keep it from becoming something unmanageable and rife with errors. The Studio Metadata Working Group tackles this by making the work product available to anyone for free as long as they have an implementation license that they request from DDEX. "Forking" of the data is minimized because changes of the standard can only be made within the DDEX organization. That covers all the places the data will show up including an application to collect metadata, a web portal, or the collection of data across many DAWs.

There is currently a short DDEX survey online, a test bed to be sure the project has all the bases covered. You can become part of the process by putting in your thoughts. If you're not already, I guarantee you'll be a metadata collector soon, so why not get involved. After all, how much can you hate getting paid? ■



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