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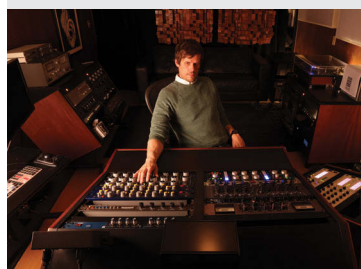
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BY KEVIN BECKA

On the Cover: Mastering engineer Dave Kutch celebrates 10 years at The Mastering Palace, NYC, with a new room designed by Martin Pilchner and a generous gift to charities. **Photo:** Beowulf Sheehan

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From the Editor

LISTEN TO THE MUSIC, LISTEN TO THE ENGINEER

We seem to have entered an age where more people are talking and fewer people are taking the time to stop and listen. It's become true across both the cultural and political landscapes, on a local and national level. There seems to more noise and chatter everywhere you turn, to the point that it can become difficult to pick out nuance, subtlety, quality...or simply a good song. The bombardment of media and messages can reach the point where a person just wants to Turn On, Tune In, Drop Out, to echo an earlier generation.

That's why it was so refreshing this month to touch base with two friends, one old one new, both top-quality mastering engineers, and talk about Listening. Actually taking the time to listen. The daily life of a mastering engineer involves intensive concentration and acute listening. It involves dialing in minute EQ or compression adjustments in a particular frequency and recognizing the whole of a musical piece. It involves isolated headphone playback and high-end monitoring in a room that is true. It is truly hearing the forest and the trees. Often they work alone. Mastering engineers have to take the time to listen.

First, Michael Romanowski, a longtime Bay Area buddy who shares my Midwestern roots, hailing from Kentucky and Nashville. He owns Coast Mastering in Berkeley, and he's active in the Recording Academy, the Bay Area recording community and in the classroom. He's passionate and conversant about ¼-inch tape, lacquers, streaming and hi-res audio. And he is passionate about listening. Active listening. He has students search for things to hear, then pay attention, then describe what they hear. He often equates learning to listen to learning about food and wine, or mastering a sense of feel and touch, or smell. Developing any of the senses helps to develop all of the senses, he believes. All improve an engineer's sense of perception.

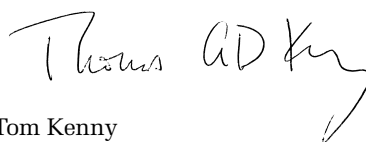
Michael shares his thoughts in a feature this month on Listening, page 32.

The second engineer is the incomparable and on-a-roll Dave Kutch out of New York City, pictured on this month's cover enjoying a fine cigar. Ten years ago he opened The Mastering Palace in Harlem, following stints at Tiki, The Hit Factory, Powers House of Sound, Masterdisk and Sony. He learned from the best, and he soaked it all up. On his very first paid gig, at the age of 20, Phil Ramone was producing Debbie Gibson, with Fred Guarino engineering. The most important among a thousand things Ramone taught him, he says, was to "trust your ears." It's not about meters or a scope, he learned. If it sounds good, press Record.

"I tell people today that my left hand can be my most valuable tool," Kutch says, "because I use that hand to cover my eyes and just listen. You have to trust your ears. And you have to trust the musician within yourself. There comes a point when you have to forget that you're working on a song, or that you have a million plug-ins in front of you, or you have that one EQ for the bottom. It really becomes as simple as a set of speakers, and the song is making my body move. My booty is shaking. It feels good, it sounds good. It's hitting me just right. It's done. It's music."

The process of making music involves many different kinds of listening, from recognizing the tonal changes in moving a microphone even a few inches to balancing clashing frequencies in a complex mix and bringing out the vocal. For a mastering engineer, it's all about presentation of the music, and how that music is to be perceived by the listener.

And to know how music is perceived by the listener, you have to sometimes stop and do a little listening yourself.

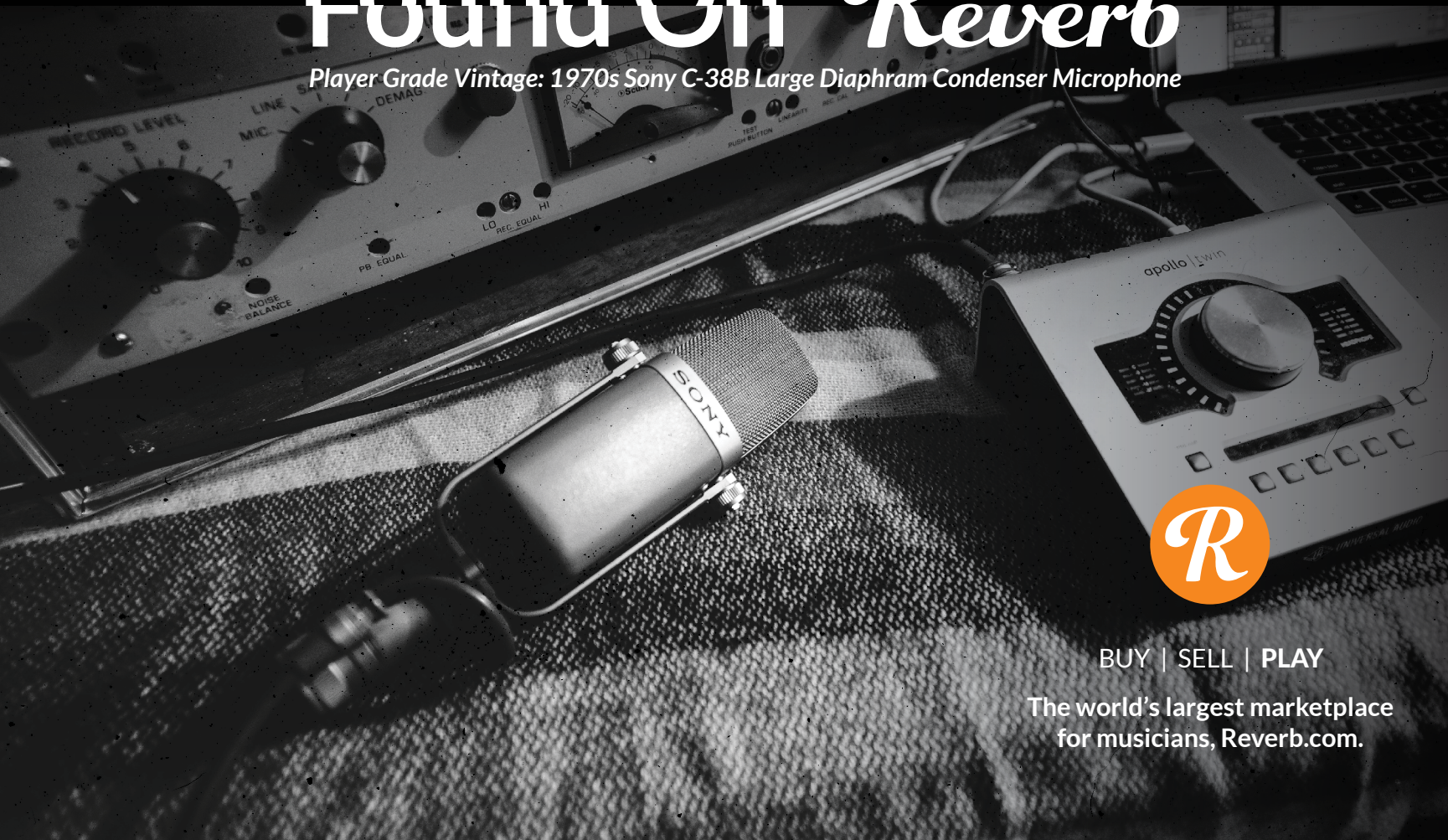


Tom Kenny
Editor



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Product Hits from AES



The 2017 AES show, which was held in New York City in October, was given a shot in the arm this year by being partnered

with NAB in an adjacent and connected hall. The busy booths revealed many new products, including plug-ins such as the Sonnox Dynamic EQ, Nugen's Halo Up Mix 3D Immersive Plug-in, Waves 360 Ambisonic Tools, Waves Torque, Brauer Motion and SoundRadix Powair Compressor.

New monitors included the Result6 Powered Monitor from PMC, the 300-watt 9S and 800-watt double woofer 18S Sub from Dynaudio, and "The Ones" studio monitors from Genelec, demoed both in the company's "immersive" booth and at Jungle City Studios out in the city.

There were also plenty of new mics at the show. Sony sneaked the C100 side-address, and ECM-100U and ECM-100N end-address microphones, while Manley proudly demoed their Silver Studio Condenser Microphone. Earthworks had the new SV33 vocal mic, Bock Audio's Bock 67 was on display, Audio-Technica had its AT5047 Studio Condenser Microphone, Gefell showed its SRM 100 handheld dynamic mic and Sontronics Solo live vocal mic was also on hand.

Under odds-and-ends comes iZotope's first hardware device, the unique Spire mobile recording device with Grace Design preamps and a unique app. Also at the show was Cranesong's Avocet IIa monitor controller, the Focusrite Red16 interface, Radial Engineering Decoder MS Stereo Matrix, and Lectrosonics M2 Duet IEM system. RTW Showed an updated MM3 MusicMeter, Shure showed off its SE112 Bluetooth earphones, and DPA revealed its new DPA Core technology and d:vice MMA-A Digital Audio Interface. Heritage Audio bowed its Reference Audio Monitoring System 5000 and CM-500 Monitor controller in two 500 slots. Cadac showcased its CDC Digital Console and Allen & Heath showed off the SQ Series digital desks.

Finally, there was the new DAD Pro | Mon | 3 monitor control software for the AX32 audio-routing and converter interfaces along with the MOM hardware controller and speaker-correction processing for up to a full 64 channel Dolby Atmos setup.

—Kevin Becka



Accurate Listening... Tielined Remotely

Joe Laporta, senior mastering engineer at Sterling Sound, has moved outside of New York City, but like most mastering engineers, he remains pretty much on call for clients. Because mastering is the final stage

before duplication and distribution of an artist's project, it's the mastering engineer's responsibility to cater to strict deadlines. And he couldn't always drive in to his main facility at a mo-

ment's notice. When looking for a way to access his main computer in the City, from his home upstate, he found a solution with a Tieline codec.

"My mastering rig is predominately all analog gear, so I always need to do my actual mastering processing in the studio," he explains. "However, there are certain times when I need to remotely listen to my work while communicating with the client, usually in situations where I need to make additional edits like spacings, fades and sequence changes. I also need to be able to quickly provide finalized master parts like DDPs, MFiTs [Mastered for iTunes] and HD .WAVs, once the client has approved the mastering and desperately needs to hand in their project to hit their release date.

"The Tieline Genie STL codec has been crucial for me to achieve this remote access, he continues. "I connect over IP from home and use the AES in/out on the box to route audio at both ends. At home the codec is connected to a D/A converter for monitoring, so I have access to files stored at the studio and listen to all of my projects that range in sample rates from standard 44.1kHz, up to high resolution 96kHz sampling.

"The Genie STL is extremely easy to use, and I can instantly start listening remotely with the simple click of one button. I can also monitor my connection at both ends of the IP link using Tieline's Toolbox Web-browser GUI and upload files through our personal server at Sterling as required. The codec has saved me many rush trips back into the city."



Photo: Alex Rockefeller

All-New: The Place...for Mastering, Nashville

At nearly 4,100 cubic feet, the mastering suite at The Place...For Mastering, Nashville, is a spacious, modern and inspiring workspace. The neutral fabrics, aluminum trim, polished concrete and natural light provide the perfect environment for the creative work of Chief Mastering Engineer Joe Palmaccio. The four-time Grammy winner designed and built the space from the ground up to accommodate his international clientele. Playback is provided via an audiophile reference system including Eggleston Andra loudspeakers and a Pass Labs X-350 amplifier. A full complement of analog and digital processing hardware includes Maselec, SPL, Great River, Smart Research, Empirical Labs, Inward Connections, ATR Services, Weiss, Pacific Microsonics and Lavry. A custom-built Sequoia digital audio workstation with processors from Magix, Plugin Alliance, Slate Digital, Nugen, Boz Digital Labs, Sonnox and Waves completes the system.

Recent mastering projects include: The Eagles, BeBe Winans, Keith Urban, Gwen Sebastian, The Rock and Roll Hall of Fame, David Cook, Josh Kelly and Jim Oblon.

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THE LOVELIGHT ORCHESTRA
By Barbara Schultz **12**

CLASSIC TRACK:
**YES "I'VE SEEN
ALL GOOD PEOPLE"**
By Barbara Schultz **18**



The Lovelight Orchestra:
John Nemeth, lead vocals;
trumpets: Marc Franklin,
Scott Thompson, Jason
Yasinsky; tenor sax, Art
Edmaiston; baritone sax:
Kirk Smothers; guitar, Joe
Restivo; Gerald Stephens,
piano; Tim Goodwin, bass;
Earl Lowe, drums.



THE LOVELIGHT ORCHESTRA

Big Blues Sound on a Small Memphis Stage By Barbara Schultz

Sam Phillips must have left a trail of breadcrumbs for Matt Ross-Spang to follow. Engineer/producer Ross-Spang began his career as an intern at Sun Studios, where he worked his way up to chief engineer and became the driving force behind returning the facility to its original character, complete with an RCA 76D tube console, Ampex 350 tape machines, etc. Sun thrived

under Ross-Spang, not only as a museum of rock 'n' roll history, but as a respected studio.

After 11 years at Sun, Ross-Spang was being offered side projects, including Jason Isbell's Dave Cobb-produced album *Something More Than Free* (Southeastern, 2016). "Working at Sun was the coolest job in the world, but I'd been thinking about going independent, and the studio couldn't let me go for a whole month

of dates to do the Isbell album—too much time to fill," Ross-Spang says.

So, he went independent, but soon found a home for his studio work: Sam Phillips Recording, the studio that Phillips designed and built after Sun. "I've been strangely on this path," Ross-Spang says. "Sam's sons, Jerry and Knox, still own and operate this studio, and it's amazing.

"When he started Sun, Sam worked in the



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TIPS & TECHNIQUES

From the Pros

1 You Don't Need to Slam an Input at 24-Bit

In the analog days, it was often desirable to drive preamps as hard as possible, for tonal purposes. The same held true in the 16-bit world, but for issues relating to the noise floor. However, neither of these issues apply to 24-bit, so give yourself valuable headroom—you'll need it later on.

2 Check for Mono Even though it's 2017

In the old days, one often checked mixes for mono compatibility due to technological constraints of the times. You should still do this today, since your average listener won't hear a mix in perfect stereo (think sitting in the driver's seat, or sitting on the left side of a couch).

3 Try Out a Manual De-Esser on Vocal Tracks

What is a manual de-esser? The answer is, you. Go through the track and manually gain down each sibilance, either by clip or pre-fader automation. Pretty quickly, you'll learn to recognize the football-like shape of a peaky sibilance, which will expedite the process. Sure, it takes time, but it's one of the most natural ways to tame those ear-splitting "ssssss" sounds.

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confines of a small space and almost no money, but here he built three echo chambers, two studios, two lathe rooms. He had his own penthouse suite with a bar next to it, and it's all still there with the original bright red shag carpet."

One of Ross-Spang's most recent productions also echoes Phillips' history, as he produced a live, eponymous album for the Lovelight Orchestra: a 10-piece retro blues band comprising some of Memphis' finest session musicians, including trumpet player and arranger Marc Franklin.

"Joe Restivo, the guitarist, and John Nemeth, the vocalist, and I were playing poker and talking about how much we loved that post-war blues—early '60s, late '50s, Specialty and Duke Records kinds of recordings," says Franklin, who, along with the group's tenor sax player Art Edmaiston and drummer Earle Lowe is a former member of Bobby Blue Bland's band. "We each picked seven songs that we loved, and we put the band and a set together and played a gig."

"We got such a great response from the people here in Memphis that we decided to keep doing it and make a record. It was Matt Ross-Spang's idea to record live."

"In the moment when they asked me to produce, I was overjoyed and at the same time, completely horrified at the idea of a 10-piece band and



me all trying to get our schedules lined up," Ross-Spang recalls. "But then it came to me: With that type of music, it's all about the live show. We should do it like the Roy Orbison Black and White Night, with everybody in a ballroom like the Peabody."

The Peabody Hotel in Memphis is where Sam Phillips' audio career really began; the legendary engineer/producer was a DJ for CBS affiliate WREC-Radio, which broadcast live performances from the Peabody. In 2000, Phillips told *Mix*, "Here I am 22 years old, and I'm mixing the bands that go on the CBS Network every night, six nights a week, and I never thought two years before that I'd ever see a big band."

"Another connection to Sam. I have it on my brain," Ross-Spang says. "But the ballroom is a huge space and we decided to skip that and go to this bar, DKDC [also in Memphis] that they're used to playing. The bar is smaller than Sun Studio, but it has a great feel in the room."

Ross-Spang, engineer Kevin Houston, and second engineer Daniel Lynch set up the musicians on the crowded club stage, sans vocalist. "Nemeth just sat at the bar like a patron and sang to the band with a bunch of gals around him dancing," Ross-Spang says.

Stage mics included a Shure SM58 for Nemeth; a Neumann KM84 on

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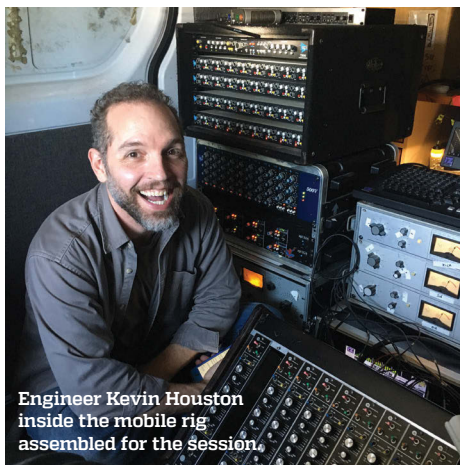
Gerald Stephens' upright piano, and a Lauten FET Atlantis FC-387 on a stand a few inches from Tim Goodwin's upright bass.

"And as a safety, we also took a KM84 and wrapped it in bubble wrap and I shoved it in the bridge of the upright bass looking up at the neck," Ross-Spang explains. "He likes to move around, so everywhere he would go, that microphone was going with him.

sE Electronics sent over some of their V7 mics, as well, and Ross-Spang used them for guitars and individual horns. "They're like Shure SM7s, but with a tighter pattern," he says. "It was amazing the rejection we got. But Kevin Houston and I also put an old EV 635 five or so feet in front of the horns; the sound of air bouncing around the horns is better than any engineer could get with faders. The spot mics were helpful if we wanted to turn up a solo.

"There's a couple things where we wanted the best rejection you can, but there were others where we wanted everything to bleed all over each other," continues Ross-Spang. "Put up the right microphone, and it fixes itself."

During the gig, Ross-Spang and the engineers were outside the club, in a van that they'd rigged as a mobile studio. "We borrowed it from Kevin Cubbins of Beale Street Caravan and stacked in my RADAR system," Ross-Spang says.



Engineer Kevin Houston inside the mobile rig assembled for the session.

"Also, I had a classic Spectrasonics console that I had a tech build a little sidecar frame for, so I can pull the channels, drop them into the frame and take them with me. We brought those and 610 and V610 compressors, though we weren't using much compression.

"The minute they started playing, we all got goose bumps in the van. They sounded like one of those B.B. King live at the Regal-style records."

Ross-Spang, Houston and the band mixed The Lovelight Orchestra on an API Vision console in the studio where Houston works, Music + Arts (Memphis).

"I panned the piano hard left and I panned the guitar hard right, and the horns are spread across the inside," Ross-Spang says. "It creates

a cool 3-D image of the room, where you feel the depth: The drums are in the back, the piano's up close."

Songs on the finished album include originals by Nemeth and Restivo, as well as classic blues band songs and a blown-up version of Al Green's "Love and Happiness."

"Matt's all about making records the old-fashioned way, performance-centered," Franklin says. "That's why we asked him to produce. As young as he is, he has an old-soul mentality about music." ■

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Classic Tracks

By Matt Hurwitz



"I'VE SEEN ALL GOOD PEOPLE"

Yes

In the early 1970s, a few bands began taking rock music in a new, more complex direction as they left the '60s behind. Yes and Emerson, Lake & Palmer were two such groups. Both recorded their memorable, earliest albums at the same studio, Advision in London, with the same engineer, Eddy Offord, who eventually would forego ELP and focus solely on Yes.

Offord had come to Advision, a studio known for, among other things, producing audio for advertising, by answering an ad he saw in the paper in 1966. He was 18. Working his way up assistant engineer on commercial and film scoring sessions under studio boss Roger Cameron, Offord eventually became a staff engineer.

At the time, Advision was located on Bond Street, just down from Oxford Circus. There was one main live room, where scores were recorded to an Ampex 16-track tape machine, with, at that point, a fairly antiquated console. "You had to keep oiling the faders, or else they'd crackle as you moved them. It was pretty bad," Offord laughs.

Yes, meanwhile, were ready to record their second album for Atlantic Records, *Time and a Word*, at the end of 1969, and decided to make the move to Advision. "It was the next step up for us," notes founding member Jon Anderson. The group worked with producer Tony Colton

and engineer Offord, who immediately clicked with the band, both musically and personally. Notes Offord, "I had no idea what 'progressive rock' was! I'd never heard anything like it."

Time and a Word was released in late July 1970, and unfortunately didn't do particularly well. Atlantic was willing to give Yes one last shot, and for their next album, the band asked Offord not only to engineer, but also produce with them. "That was my first gig as a co-producer," Offord says, "which was pretty unheard of at the time. I think Glyn Johns and I were among the first. Plus, I got paid double!"

Before recording began, founding guitarist Peter Banks was asked to leave in April 1970, and was replaced by Steve Howe, whom Anderson had seen performing at London's famed Speakeasy with his band, Bodast. On bassist Chris Squire's suggestion, Howe was invited to join.

While they would typically rehearse in London at a place in Chasper Avenue, the band now spent three-and-a-half weeks in May rehearsing on a farm in Devon, Langley Farm, which Howe eventually bought and still owns. "I just thought it was important to all be together," says Anderson, "to wake up and make music together, spend all day having fun and just enjoy music and each other. We bonded like crazy."

By June, the band had returned to the road, playing songs from *Time and a Word* and some of the new songs, including Howe's acoustic "Clap," recorded by Offord at The Lyceum on June 17. ("I think I had a Revox and a couple of mics," he notes.) A studio version of the song was recorded and released as a B-side to "Your Move," though this live version ended up on the album.

Offord spent August and September recording ELP's first album, and, beginning October 11, moved on to the first sessions for *The Yes Album*. The sessions would continue through October 30, with Yes sprinkling in session dates on off days from their ongoing road gigs. On October 21, they began recording what would become the song "I've Seen All Good People."

Around this time, Anderson found himself inspired by Hermann Hesse's book *Journey to the East*. "It's all about 'take a straighter, stronger course to the corner of your life,' starting to search for that positive place," Anderson explains. "Because it's time is time and time—I actually sang that and started to try and write down what I was trying to say, about a real understanding of why we're here, the idea of your time on Earth." This became the iconic chorus of "Your Move": "Cause it's time, it's time in time with your time, and its news is captured for the queen to use."

During rehearsals, Anderson suggested to drummer Bill Bruford and bassist Squire to create a simple bass-kick beat, which would remain through the song. "It's like a heartbeat." Keeping such a beat up for three-and-a-half minutes proved difficult, so Offord created a simple tape loop of a few bars' worth, which the band then followed on tracking. Says Anderson, "That's probably one of the first click tracks ever done."

Immediately after, Howe's rhythm guitar was recorded onto Track 4, played on a small, 12-stringed Portuguese instrument called a vachalia. "Steve was always collecting these bizarre instruments," Offord notes. "He just said, 'I want to try this one.' He knew what he wanted. It goes all the way through the song, there's no other guitar."

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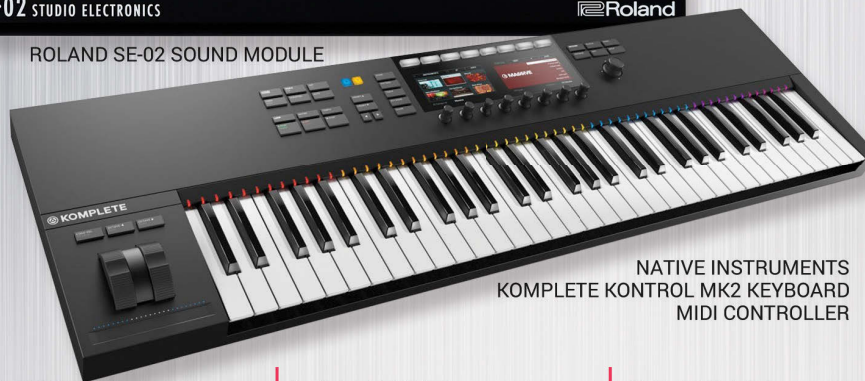
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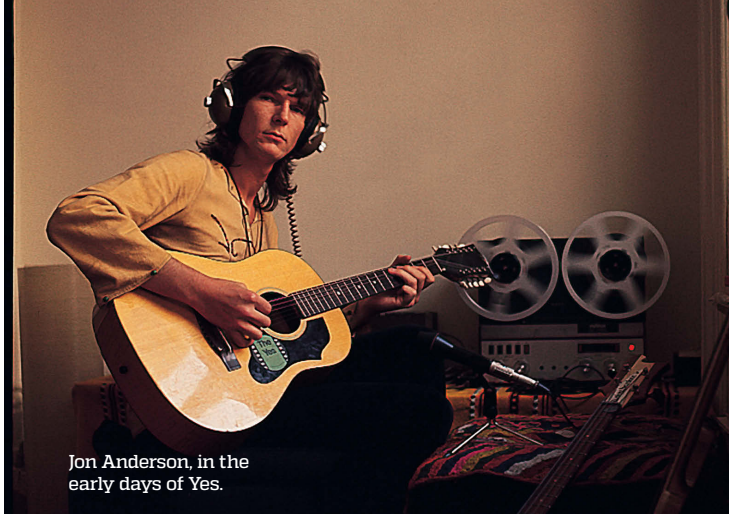
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Jon Anderson, in the early days of Yes.

Bruford tracked two passes of a shaker onto a pair of tracks, and keyboardist Tony Kaye record his Hammond organ onto Track 7. This was accompanied by a deep, growling bass line, played by Squire on a pedal bass system he often used onstage, a Dewtron Mister Bassman. Says Anderson, “The keyboards would creep in, and eventually we do a big keyboard section, with a church organ sort of sound.”

With the basic track recorded, Anderson’s lead vocals were then tracked with a Neumann U64. For Yes recordings, Offord says, vocals were never sung during basic tracking: “When we laid down tracks, we always did just drums, bass and a scratch guitar—the latter just to let the other guys know where we were in the song; it was never used. I never heard a vocal until it was time to record it.”

Key to any Yes recording are complex backing vocal parts, often contributed by Squire, who had sung in a choir in public school and was rather adept at creating interesting parts—in this case, both regular harmonies and interesting counter-vocal lines—for him, Anderson and Howe to sing.

Interestingly, though the trio would rehearse the parts singing together, they were never recorded together. “It’s very hard, three people around a microphone, to get the sound we were looking for,” explains Anderson. Each was double-tracked, beginning with Anderson’s unique high voice, followed by Squire (middle harmony) and Howe (low). The backing vocals were each recorded on their own tracks, then Offord mixed the pairs of the trio down to two tracks (i.e., two sets of harmonies), freeing up the base tracks to do more. In all, seven of the 16 tracks of the tape were devoted to vocals for “Your Move.”

Included in that was the second of two tips of the hat to John Lennon, Anderson mentioning “Instant Karma” (which had been released earlier that year) in his main lyric, and a harmony line of “Give peace a chance,” heard toward the end of “Your Move.”

One final touch was the addition of two tracks of a recorder, played by a fellow named Colin Goldring, of the oddly named band, Gnidrolog, whom Anderson had seen a few times. “It was originally supposed to be a Mellotron flute,” he notes, “but it just sounded too Beatle-y.”

While rehearsing “Your Move” at Advision, on a break (“to go outside and roll a joint or something”), Anderson returned to hear Howe and Squire playing an infectious, punchy riff. “I thought, ‘Wouldn’t it be cool if we get to the end of ‘Your Move,’ with a big chord, and then go into that riff?’ And that’s what we did.”

Anderson suggested the band modulate a few times, “and then I’ll come up with something,” which became the line, “I’ve seen all good people turn their heads each day, so satisfied, I’m on my way.” “I started singing that riff—the idea that we played in this band, come and see our show, they’re the good people, and we’re happy to see them, and we’re on our way after seeing them.”

Offord tracked the live session, with Bruford’s kick and snare mixed into one track, his accent tom hits on another. Bruford, at the time, played a fairly simple Ludwig kit, Offord says, unlike “the real huge kit Carl Palmer had.” He distinctly recalls the drummer not dampening his snare, as was the common practice at the time. “That was a very dead sound. We talked about it, and he said, ‘I really want a ringing snare drum.’ And that became his unique sound.”

Squire accompanied, punching away on his Rickenbacker, his Marshall cabinet miked “a few feet off,” with an AKG C28. “His basic sound was pretty trebly; that was his trademark,” Offord notes.

Howe played rhythm (heard on the left in the recording), again, a scratch track, to be recorded properly as an overdub, as was his second part, the song’s lead. Of course, he played the part on his trusty and beloved Gibson ES-175D. “I don’t ever remember keeping anything he did live,” Offord relates. “He was so precious about that guitar, it was like his baby! On the very first tour I went on, we didn’t have a private jet but we traveled first class. But he had to book a seat for his guitar; he didn’t trust the guy the luggage handlers. It had to be next to him on the seat.”

Once the rhythm had been completed, Anderson notes, “Then the final thing is how to get out of there.” The solution was to modulate the vocal line in downward steps, the vocals following Tony Kaye’s organ and Squire’s Bassman bass pedals, which eventually fade out to just leave the band’s vocals bare, as the song fades out. Three more three-part passes of the “I’ve seen all good people” line were then recorded and placed at the beginning of the song, as its intro. “We were singing it, and I said, ‘Oh, why don’t we stick it in the front,’” Anderson says.

Track Sheet		Song: I've Seen All Good People: a. Your Move, ...				Source Reel: G-2221-3	
Artist: Yes	Album: The Yes Album	Label: Atlantic	Set: # SD-8283	ARCMT:1004285			
1	2	3	4	5	6	7	8
Hi-Hat + Tom	Bass 1 + Kick	LD Vox 1 + BG Vox 1 + OH	BG Vox 2 + Acoustic Gtr 1 + Bass 2	Maracas 1 + Bass 3	BG Vox 3 + Flutes 1 + Electric Gtr 1	BG Vox 4 + Flutes 2 + Organ 1 + Piano 1 + Bass 4	BG Vox 5 + Maracas 2 + Piano 2 + Bass 5
9	10	11	12	13	14	15	16
Acoustic Gtr 2 + BG Vox 6 + Bass 6	Acoustic Gtr 3 + BG Vox 7 + Handclap 1 + Electric Gtr 2 + Bass 7	Acoustic Gtr 4 + BG Vox 8 + Electric Gtr 3	Mouth Pops + Fingersnaps + BG Vox 9	BG Vox 10	LD Vox 2 + Handclaps 2	LD Vox 3 + Organ 2	BG Vox 11 + Bass 8
Tape: 2" analog		Speed: 15ips	Dolby: A	SMPTE: No	Slave Reels: N/A	Tones from Reel: MRL	

This track sheet was created during analog to digital transfer due to inaccurate or incomplete original track sheet documentation on this date: 05-20-11

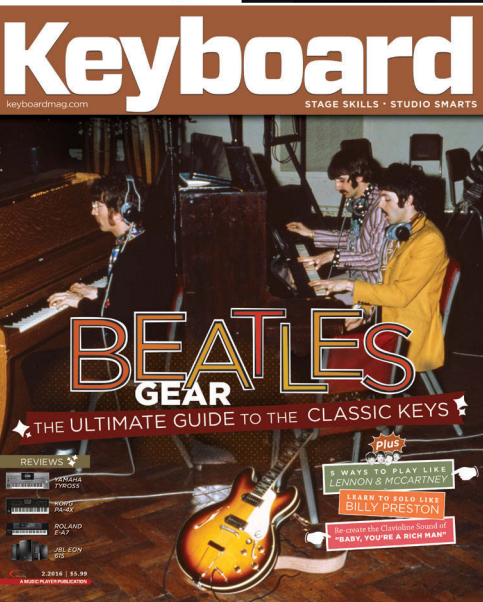
Track layout for “I’ve Seen All Good People”

The two sections were edited together by Offord, the tape box clearly marked, “In Two Sections—From white leader to black Chinagraph over join—From there onwards is second section.”

“Your Move,” on its own, was released as a single, backed with the studio version of “Clap” in the U.S. (“Starship Trooper” in the UK) on March 5, 1971, three weeks after the release of *The Yes Album*.

“Yes was never built to be a commercial entity,” Anderson says. “We didn’t make it as a commercial song, just one we could perform onstage that leads into the next piece. The last thing we thought about was, ‘Are we gonna get a hit record?’” They got one nonetheless.

That edit, along with oodles of other rarities—including 5.1 surround and instrument-only mixes—are available on a series of Yes catalog reissue CD/Blu-ray sets released over the past few years by British reissue label Panegyric. For each, the albums have been skillfully remixed by Steven Wilson, who is known for his work in the genre and maintained the goal of re-creating Offord’s original mixes. ■



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Live



From left, longtime Kenny Rogers FOH engineer Keith Bugos at the ATI Paragon console, brought in by FOH engineer John McBride, who has his hands on the companion Yamaha Rivage PM10, in front of engineer Joe Keiser.

'ALL IN FOR THE GAMBLER'

Nashville Pays Tribute to Kenny Rogers By Steve La Cerra

How can you begin to describe the career of an entertainer who has performed for 60 years, sold more than 100 million records worldwide, is a member of the Country Music Hall of Fame, and by all accounts is beloved in the music community? "Stellar" comes to mind, and Kenny Rogers' peers would agree.

In honor of Rogers' announced retirement plans, they staged "All In for the Gambler: Kenny Rogers' Farewell Concert Celebration" on October 25 at the Bridgestone Arena in Nash-

ville. Featuring performances from Don Henley, Little Big Town, Alison Krauss, Lionel Richie, Chris Stapleton, Lady Antebellum, Kris Kristofferson and others, the concert ended with Rogers performing duets with Dolly Parton.

Called in to manage front of house for the event were engineers John McBride, Rogers' longtime FOH engineer Keith Bugos, and Joe Keiser. "When they called me to do front of house and I saw the lineup of talent," begins McBride, "it made me realize that it was going to be a memory I wanted to be a part of. After

I had committed to doing it I spoke with Keith, and he offered to come in and help out. I've known Keith for years, and no one knows those songs better than he does. It's in his DNA, so it made a lot of sense for us to work together. To be honest it was great to just hang out with him."

Don Was served as the Musical Director, forming a backup band that featured himself on bass, Kenny Aronoff on drums, Matt Rollings on keys, and Jedd Hughes and Tom Bukovac on guitar. That band would accompany all of the guest artists, sometimes augmented by guest

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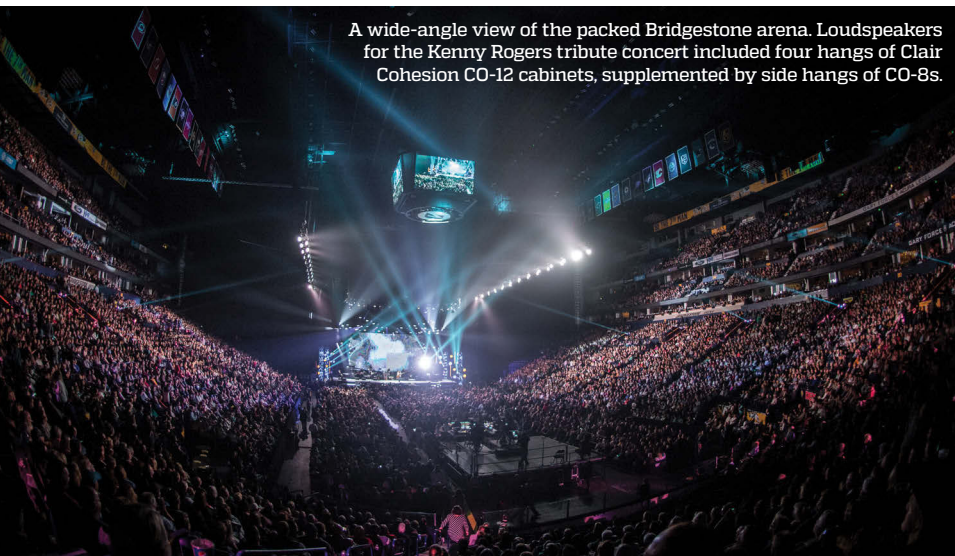
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A wide-angle view of the packed Bridgestone arena. Loudspeakers for the Kenny Rogers tribute concert included four hangs of Clair Cohesion CO-12 cabinets, supplemented by side hangs of CO-8s.

instrumentalists. Most of the inputs for the backup band were routed to McBride's ATI Paragon (analog) mixing console. "We used the Paragon for inputs from the band and some of the vocals, and a Yamaha Rivage PM10 for vocals and guest instruments," explains McBride. "It was a great band, so making them sound great was pretty easy."

Keiser formulated a plan for combining audio from the PM10 (which he uses to mix Nickelback) and the Paragon, and routing feeds to the main FOH system, as well as additional output feeds. "At rehearsals," Keiser says, "we thought about whether we should route the Paragon into the PM10, or vice versa. Initially we patched the Paragon into the PM10 and then the PM10 fed the P.A. system. When we got into the Bridgestone Arena for rehearsal on the day of the show, John's full drive rack was there with all his high-end vintage gear. He wanted to use that gear, so we went from the PM10 into John's drive rack, then into Lake LM44s to drive the entire P.A. system."

The P.A. consisted of four hangs of Clair Cohesion CO-12 cabinets. The main hangs had 16 cabinets per side, while smaller side hangs of 12 CO-8 cabinets were placed approximately eight feet upstage. The arrays were supplemented with Clair CP-218 subwoofers.

"We had six subs per side," says Keiser, "and believe it or not, we never turned them on. The CO-12 has such a natural, solid low end that we didn't need to augment their low-frequency response. During rehearsal we pulled up the drums at FOH, and when I told John the subs weren't on he started laughing. We had already done a few bands without the subs, so we just left them off!"

A hockey game was scheduled at the Bridgestone the night before the performance, explains McBride, so rehearsals were in a separate location and they didn't get into Bridgestone until 5 a.m. on show day. With 25 guest artists, there was a lot to prepare for. Keiser programmed scenes on the PM10 as they built the show, allowing recall of settings for specific artists.

"Every artist had their own spin on Kenny's songs," states Keith Bugos, who has been Rogers' FOH engineer since the early 1980s. "The producers of the show did a great job of matching each song to the guest artist. When someone is doing their interpretation of the song, you have to allow them the freedom to express their vision, but obviously the vocal qualities of each artist were very different. You have to make sure that you represent them accurately while being true to the song."

"Using the PM10 for the vocals helped us quite a bit in that regard," Keiser adds. "Typically, you mix a band with the same singer all night, so you might use the EQ on the channel as well as the EQ on the L/R bus to tailor the P.A. to their voice. In this case we had the same band with different singers for each song—and that presents a challenge in regards to the system EQ. I tried changing the system EQ on the PM10 to accommodate different singers, but that didn't work very well because it changed the sound of the band; the band sounded so good that you don't want to mess with that."

"We had some singers who were right on the mic and others who had the mic a foot from their mouth, barely singing into it," he continues. "Instead of using EQ on the L/R bus, we used the channel EQ on the PM10. It's very powerful and precise, and you don't have to stay with one style of EQ—you have options of aggressive,

smooth or precise curves. There's an 1176 plug-in on each channel of the PM10, and we used that for consistent treatment of every vocal channel."

"Kenny has always had a style where he sings way off axis from the mic," interjects Bugos, noting that he sang through a wireless Shure SM58. "He's got a very recognizable quality to his voice, that sort of gravelly thing in the 2kHz region. I have to make sure that the presence is there, along with the warmth and the low end. If you go to a concert to see someone you like, you know the words to most of the songs. I make a big deal about imagining that this is the first time I'm hearing these songs. These songs are stories. I want to make sure that his voice sounds the way people remember it."

The band used in-ears for monitoring, but Kenny—not so much. "Kenny is very old-school when it comes to monitors," reveals Bugos. "He has three sets of ears that we carry with us, and we've tried them many times with every trick you can imagine to make him feel comfortable. But Kenny's show is based upon him entertaining the crowd, interacting with the audience, and talking and listening to them. We've never been able to make it work to a point where he can get the response he needs in order to interact with the audience. So he has three sets of stereo wedges across the stage. Fortunately stage volume is relatively low. I think we have one small bass amp up there that's behind a baffle, so we can give him a good mix from those wedges."

Most of the show featured the guest artists performing Rogers' songs, but the most special moments came at the end of the night when Rogers performed with Dolly Parton, possibly for the last time.

"Kenny didn't sing at all until the end when he and Dolly performed 'You Can't Make Old Friends,'" reports Bugos, "and then they closed with 'Islands in the Stream.' It was two extremes: 'You Can't Make Old Friends' brought out the tears and the tissues, and 'Islands in the Stream' had everybody on their feet going absolutely crazy. When they were finished with 'You Can't Make Old Friends,' they did something I didn't know about. I don't think anybody knew. They sat down and told stories about each other, about touring together. It was truly touching. Then they did 'Islands in the Stream,' and when they were finished they did the old classic 'drop the mic, I'm done and I'm outta here!' John and I made sure that those mics stayed wide open so when they hit the ground it was like Ka-boom! It was a fun way to end the night." ■

JASON ISBELL AND THE 400 UNIT



Jason Isbell sings into a Shure SM58.

Photo: Erika Goldring

Jason Isbell's tour is in Europe now, but *Mix* caught his Bay Area show at the Fox Oakland. Isbell is playing a catalog-spanning range of songs, as well as tunes from his powerful recent release *The Nashville Sound*. Mixing FOH is longtime engineer Cain Hogsted, who mans an Avid SC48 console.

"It's easy to navigate," Hogsted says. "I like to multitrack-record our shows, and so it allows me to do that really easily. I'm using all inboard

processing and effects, too—I like the C6 multiband compressor on his vocals and a little bit on the snare drum, some basic reverbs—but this band doesn't use any crazy effects."

Isbell and band are using venue-provided P.A.s, but they carry a full complement of backline and mics, including several Shure models, as the tour is endorsed by the mic maker. Isbell, for example, sings into a Beta 58.

"Jason has a huge dynamic range, and it can really handle his explosive vocals, but also the lighter stuff when he's off-mic a little bit," Hogsted says. "It stays very clear, so I only have to do very minimal EQ'ing. It's a standard for a reason."

Hogsted also uses Shure mics to capture guitars. Both Isbell and Sadler Vaden play melodic leads and solos, so keeping their sounds distinct is essential.

"Both rigs have basically the same mic configuration," Hogsted says. "Jason uses three amps onstage, and he uses all of those in different configurations. On each of those cabs, we have an SM57 and a KSM313 ribbon; I use the 313 as the meat of the guitar tone, and if he's going into a solo I'll use that 57 a bit higher to make it stand out in the mix."

Vaden plays through Vox and 3rd Power amps, and Hogsted mikes them with a KSM313 and an SM57, respectively. "It's the same principle," Hogsted says. "The Vox sits in the mix and I boost or bring down the 3rd Power with the 57 when he's playing leads or a lead melodic line. The 57 is more like the icing on the cake." —*Barbara Schultz*

TEARS FOR FEARS 'RULE THE WORLD' TOUR



Monitor engineer George Squiers at the Yamaha PM10.

Following a co-headlining run with Hall & Oates this past summer, Tears for Fears stopped in at Royal Albert Hall (for the first time since 1985) in London for a one-off, or perhaps a teaser for its upcoming April 2018 tour through the UK (their first tour there in 18 years). Firehouse provided production for the U.S. leg; Subfrantic supported the Royal Albert Hall date. Pablo Wheeler is mixing FOH on a DiGiCo SD 10, while monitor engineer George Squiers mixed all shows from a new Yamaha PM10 console, making use of 48 inputs.

"We are old engineers with a very simple/not complicated approach to mixing a great rock band. We try to let them do all the work," Squiers laughs. "We have a standard splitter line system hitting our I/O racks, and I have 8 stereo channels of in-ears, plus a shout speaker and a thumper. Basic reverbs for vocals and drums. Nothing overcomplicated. I figure the less in line the better."

The miking scheme onstage includes a Radial Firefly tube DI for bass; DPA d:facto wired vocal mics for backups and d:facto capsules adapted for Shure handheld transmitters for lead singers Curt Smith and Roland Orzabal; DPA 4099s for toms and snare; and DW moon mic on the kick drum. There are no guitar mics, simply Kemper stereo units. "This is the first time in my career, in almost 30 years, I haven't used a mic on a cabinet," Squiers says. "Charlton and Roland programmed them, and they sound fantastic."

The wireless system is Shure PSM 1000, with all JH Audio Roxanne in-ears, except for Orzabal, who prefers JH 10s.

"Sound is subjective," Squiers says of his approach to the artist's mixes. "Everyone has different needs for survival in the spotlight. I don't ask the artist how it sounds; I ask them how it feels, because that's what it's all about. I pride myself in the finish work and the detail. Being able to manipulate a mix without changing what the artist is striving for is important."

"I use panning—real estate, I call it. Instruments and vocals not only play a role in the sonic spectrum but they also have a place on the physical plane. I also call it spatial awareness. We are blessed with two ears and an amazing awareness of imagery. Why not utilize it? It's inspiring. So I am absolutely active song to song." —*Tom Kenny*

On the Cover

By Gary Eskow

THE MASTERING PALACE, NYC

Dave Kutch Celebrates 10 Years at Harlem Facility



The Mastering Palace team, from left: Dave Kutch, Tatsuya Sato, Kevin Peterson, Kara HG Coleman, Mark Santangelo

Photo: Allan Coleman

Dave Kutch is a sharp dresser with a unique sense of style. He just knows what looks good, tastes good, smells good. It's evident in his surroundings as he walks through his two-room facility, The Mastering Palace. And it's evident in his demeanor as he dives into conversation. He tells a good story, for sure, one-on-one or in a small group. And most importantly, he listens. He asks questions and he engages. He certainly knows what sounds good.

One month ago, Kutch celebrated his ten-year anniversary of working out of the first floor of an old firehouse on West 121st Street in Harlem. To mark the milestone, rather than throw himself a party, he announced that all of his profits for the month will be given to two local charities.

Then just two weeks ago, Kutch flew home to New York with a Latin Grammy in hand, his first, for the smash Latin/hip hop hit "Despacito." It's been a busy month. Hard work and a focus on "what's around the corner" have done him well. Then again, this is a guy who was soldering and terminating his own cables two years before he had found the space to hold The Mastering Palace. He knew where he was headed.

Kutch grew up in a musical family and like lots of others his age, wanted to be a rock star. In 1990, after graduating from high school, he attended the New York Institute of Technology recording program, then quickly moved into an internship at Tiki Recording Studios under the tutelage of Fred Guarino.

Tiki was a great laboratory for a 19-year-old

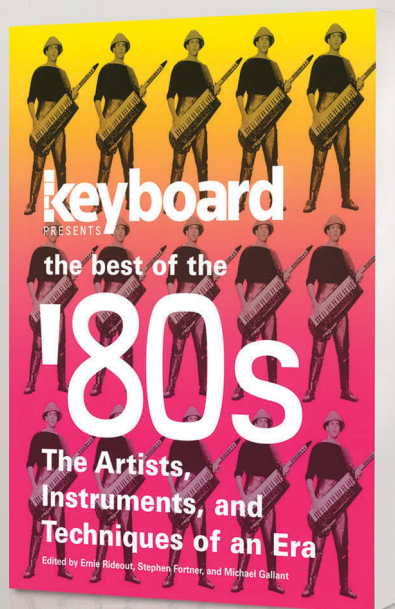
fledgling engineer. Rock bands, voice-overs for corporate productions, and a wide variety of projects worked their way through the studio, and Kutch worked on many of them. He also learned how to maintain the Trident TSM console. "I'd go in on the weekend and help them with the EQ pots, soldering all day. Studio maintenance was a big part of what I learned at Tiki, and Fred Guarino was an incredibly talented tracking engineer."

After about six months, Guarino needed an assistant for a session he was tracking at Debbie Gibson's home studio on Long Island, and he tapped Kutch. Phil Ramone would be producing the project, which was Kutch's first paid gig. He says, "I learned a lot of my earliest recording philosophies from Phil. Trust your ears was something that Phil used to tell me all

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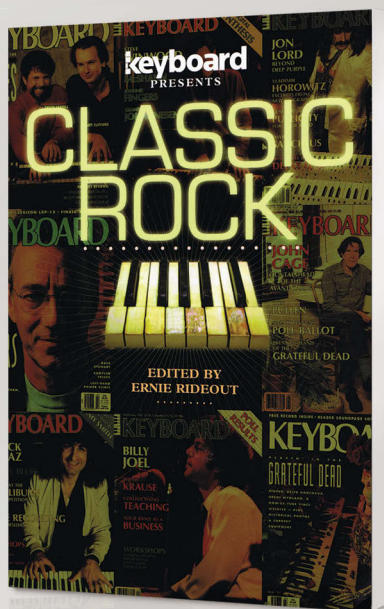
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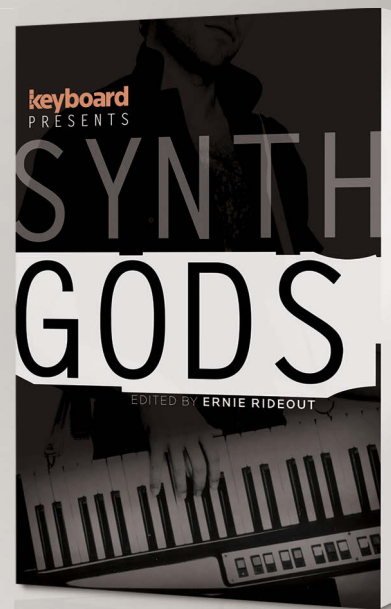
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Dave Kutch's Martin
Pilchner-designed
Studio 1, with Focal
monitoring.



Photo: Russ Rowland

the time. It's not about looking at meters or a scope; it's what you hear. I tell people today that my left hand can be my most valuable tool, because I use that hand to cover my eyes and just listen.

"Phil also taught me that it's not about recording a guitar or a keyboard," he continues. "A recording engineer's primary job is to create an environment in the studio where the artist doesn't see, feel or become encumbered by the technology that is around them. You have to be one step ahead of the process, making sure that a microphone is always ready to go, for example, so that when the best performance comes you're ready to capture it. Debbie Gibson was a true studio professional."

The gig with Debbie Gibson helped Kutch land an assistant engineering position at The Hit Factory in 1994, at the height of the studio's dominance. Michael Jackson, Neil Sedaka, Biggie, Puffy, Public Enemy and countless others passed through the door. The variety brought in different genres and wide-ranging personalities, and Kutch learned to manage and work with all types. "I also learned from Eddie and Troy Germano how a client should be treated and how you operate a recording studio in New York City," he says. "It isn't easy."

At the time, Hit Factory had nine studios and five mastering rooms at two locations on West 54th Street. Tiring of the hours and unpredictability of being an assistant, after three years he asked the Germanos if he could take over the fifth mastering room and make a switch.

"The fifth room had a Sonic Solutions hard disk recording system, the only one in the entire building," Kutch says. "This was before Pro Tools became the mainstay, and I wanted to learn hard disk recording. Nobody else wanted that room. So I took it over. Not only did I learn hard disk recording, I learned how to cut vinyl from Herb Powers. Learning the oldest and the newest, the limitations of both mediums, at the same time."

The association with Powers would continue when the veteran left Hit Factory in 1997 to open Powers House of Sound, with Kutch as the sole assistant. "The first album mastered there was Biggie's *Life After Death* and then Puffy's *No Way Out*," Kutch recalls. "I did all the sequencing and editing. In that tenure of three years with Herb, it was all the early Usher albums, the Missy albums, TLC, and on and on. We had an amazing success rate with Number One hits. His room with me in a production suite. Herb is an awesome man. I learned how to treat the client from Herb. Just a good person. I was 25 at that time. I was hungry and I had a lot of hustle."

When Powers closed shop a few years later, Kutch went to work for Masterdisk, in a surround room that did very little surround work, then later Sony, where he was able to outfit his own room on their dime. When the studios closed nearly three years later, he was able to buy the gear lock, stock and barrel for pennies on the dollar. That gear would soon outfit The Mastering Palace, but not quite yet. First he had to go on location.

"This is where Alicia Keys comes in, and Ann Mincieli," Kutch explains, "and that's why I will always love Alicia I will always love Ann. Right when [Sony] was about to shut down, Alicia and Ann booked me to master the *As I Am* album. I was excited. But Sony was a mess. Alicia and Ann asked if I could move all my stuff out to The Oven Studios in Long Island and master from their live room."

In a bizarre twist of fate, Keys' The Oven Studios was the former Tiki. Kutch had set up a meeting between Keys and Guarino when the latter decided to sell, bringing him a nice check for helping to broker a real estate deal. He had never been paid a dime while at Tiki, but he returned with a hefty check, a budding career and a big album in front of him. He worked from his portable rig in the live room for four months. And just as he was wrapping up, he found the space in Harlem that became The Mastering Palace.

Working remotely during the day and doing construction at night, Kutch slowly brought his business to life. He did all the construction himself, saying, "The first room was literally built by me with a miter saw, a Skil saw, L-brackets, sheet rock screws and a power drill. And a ton of blood, sweat and tears."

There's a reason he named his new facility The Mastering Palace and not Dave Kutch Mastering. He knew that with his name on it, it would always be associated with him; he wanted at least two rooms from the beginning, and he wanted to work with other engineers. So about three years in, he brought in noted engineer Tatsuya Sato to work nights and odd hours. Later, with the completion of the second room, he would add mastering engineer Mark Santangelo.

"I've been very fortunate, and business was good, so there was no way I was building another room with my bare hands," Kutch laughs. "Zach Hancock, who runs Downtown Studios, had introduced me to Martin Pilchner about two to three years before I built the room. Drinking and dining with Martin is nothing but fun. The first reason I chose Martin is because I could have a conversation with him. And he listens. The second reason is that he is absolutely a genius, but can educate you in the simplest form. This is the guy I want to build my second room."

"When I was ready I called him, and he came down," he continues. "Simple measurements, the blueprints. Everything was down to an 1/8-inch. No problems. I got more room than I was even expecting."

From the time he opened the doors, Kutch had developed a relationship with Focal and their first generation of nearfield monitors. Also with Dangerous Music. "It's all the same signal path," he says of his rooms and his chain. "That's where your signal is going through for monitoring. That's where your signal is going for processing. Then it's hitting your speakers. As far as EQs and plug-ins, they all sound so good, it's almost foolish to pick. I don't put my name on anything until I know the people. Chris Muth is a genius, and Focal and Dangerous have always been there for me."

The Mastering Palace is home, but Kutch still takes his skill set on the road, offering his Private Mastering Service to clients who prefer to stay closer to home. "I take either the Focal Trio 6s or SM 9's with me, depending on the size of the room, plus a pair of Shape 4s," he says. "When

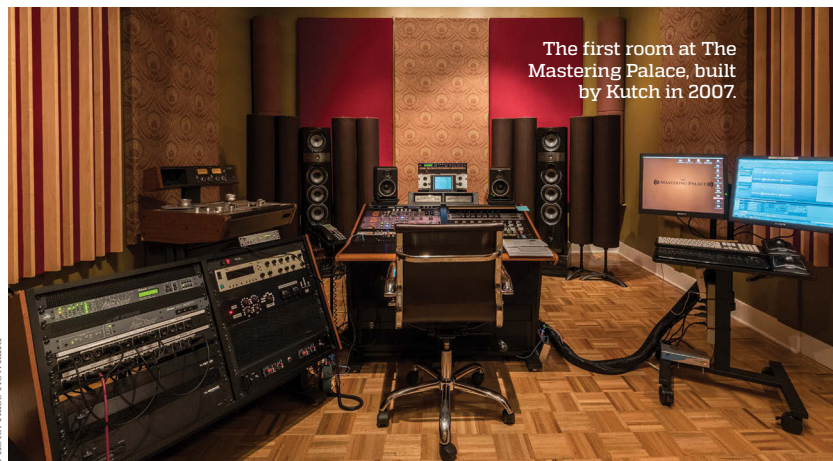
traveling I use the Dangerous Source as my I/O and their two-channel Dangerous Convert. Sequoia is my DAW. It's stable. They were the first software to emulate Sonic Solutions when Sonic failed.

But the subject quickly changes from gear to people, as Kutch consistently expresses his gratitude for those who have helped him along the way, and his humility for his own good fortune. He realizes that he got a bachelor's degree from Fred Guarino and Phil Ramone; a master's degree at The Hit Factory, and a Ph.D. from Herb Powers. That's why he wants to give back. That's why he mentions his own mentors and his new team so frequently.

"I'm so glad that New York has Ann and Jungle City and Troy and Germano Studios," he says. "These are two people who know great studios and know how to service a client. And they've always been good to me. Then the core of my team is Kara Coleman, the best studio manager I've had in ten years, and my assistant engineer Kevin Peterson, who just had a Number One hit in the UK with Camilla. My goal for the past two to three years has been to take The Mastering Palace and its association with Dave Kutch, and turn it as much as I can on these other talented people who work here."

It's been an amazing ten years for Dave Kutch and he realizes both how hard he has worked and how fortunate he has been: A great team, great studio, great artists, Grammy nominations. Ten years ago he was wielding a hammer. Now, he's done all right, and he's humbled by it. He wants to give back.

"This neighborhood has been wonderful to me," he concludes, "and I've always been thankful for the instruments that were around me grow-



The first room at The Mastering Palace, built by Kutch in 2007.

ing up and put in my hands as a kid. I realized that there were a lot of kids around who have no access to instruments, either because they can't afford them or the schools are cutting back. I asked Kara to look around at local charities, and she found Amp Up. We were able to decide which neighborhood would receive the instruments, and we chose Harlem.

"And finally, my mother died 14 years ago, in November, and so it is bittersweet celebrating. I found this great charity, Look Good, Feel Better, which helps women get a wig or have a makeover while they're going through chemo and radiation. My parents were fortunate to be able to afford these simple things, and I realized how much of a difference it made for her—the dignity it brought. I decided to celebrate by giving something back." ■



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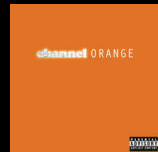
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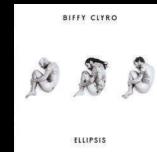
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MASTERING IN THE MOMENT

FOUR CREATIVE ENGINEERS, FOUR STATE-OF-THE ART STUDIOS // BY BARBARA SCHULTZ



Photo: Lola Serrano

Heba Kadry in Timeless Mastering, the studio that she and Adrian Morgan own and operate in Brooklyn.

Each December, *Mix* takes a close look at the state of mastering technology and business issues. Living at the intersection of production, tech, formats and distribution, mastering can be seen as a bellwether for the audio business generally. That's why it's so encouraging to speak to the four mastering engineers highlighted in this article. Not only have these pros been doing beautiful work, but each has found singular ways to grow on the business side.

HEBA KADRY, TIMELESS MASTERING

Heba Kadry got the audio bug when she was working as a jingle-writer in her native Egypt. "I scored a big jingle for Cadbury," she recalls, "and I ended up in the biggest recording studio in downtown Cairo. I thought, 'I need to learn more about audio,' but there was no way for me to do that in Egypt."

Kadry moved to the U.S. and remade her career through study and internships, eventually realizing that mastering was her niche. She

took a studio manager job in a New York City mastering house and borrowed the studio in off hours. She mastered friends' records for free, and taught herself through trial and error. She built a clientele gradually and, in 2013, took a leap, partnering with Adrian Morgan at Timeless Mastering in Brooklyn.

"Timeless was in a really tiny room in Williamsburg. When we got priced out, we moved to Bushwick and built a new room from the ground up," Kadry says. Her setup in Bushwick includes her treasured Egglestonworks Andra 1 monitors, an Ampex ATR102 ½- and ¼-inch tape machine, Sterling Modular mastering console and her Magix Sequoia 14 DAW.

"My studio partner has had extensive experience designing and building studios. We spent eight months on the build-out, doing it completely ourselves. It was quite grueling work," Kadry says. "The longest lease I could find was five years, so it didn't make sense to sink all of our budget into hiring a contractor. It was the only way I could keep my rate affordable."

Today, Kadry caters mainly to independent labels and artists. One of her latest projects is filmmaker Jim Jarmusch's evocative *Pater-son* soundtrack. The film explores the quiet existence of a bus driver and his inventive wife; it takes a simultaneously deep and whimsical look at the importance of art in daily life.

"Jim Jarmusch has a band with Carter Logan called Sqürl, which has a heavy guitar sound with a traditional rock band setup, but for *Pater-son* they switched gears and created a beautiful ambient score using interesting samples with Jonathan Kreinik helming the mixes," Kadry explains. "The music has a lot of sinewy high-frequency content as a result of repitching samples, so they needed to be tamed without losing their presence. That was one of the technical issues."

"On one track, 'Persian Dream,' they sampled an old Iranian song by the artist Pooran. It was hissy and needed restoration, but also was intentionally lo-fi in a cool way." To keep that sample distinct within the track, Kadry made the surrounding ambient music all the more wide and lush, using care not to "flatline the dynamics," as she puts it.

"We used tape on some of the songs to give it a different sonic character, as well," Kadry continues. "They wanted some parts to sound warmer, and using half-inch tape helped to achieve that—saturating a bit harder gave some pieces more harmonic content."

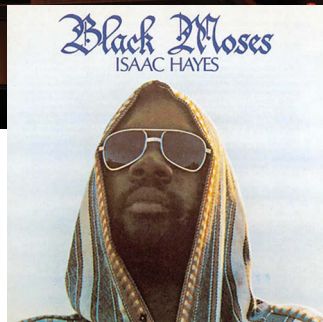
DAVE COOLEY, ELYSIAN MASTERS

Dave Cooley started his audio career in L.A. as a producer and mixer, but he has always done some mastering work, as well. He says he realized pretty quickly that he had something to offer as a mastering engineer for independent labels.

"The independents had targeted needs based on rapidly evolving



Dave Cooley of Elysian Masters



genres and rapidly devolving budgets,” Cooley says. “And they have specific needs related to genre. I come from a DJ and record-collecting background, so I know the difference between what a beach-goth record needs and what a CTI-style/’70s jazz-influenced record should have. So I can bring out respective strengths, and address the varying client expectations.”

Like Kadry, Cooley is a Magix Sequoia user. Other favorite gear includes his ATC 150ASL monitors, iZotope Advanced software, and Merging Technologies, JCF Electronics and Bricasti converters. But the latest source of pride in his studio is a 1966 Neumann VMS66 vinyl-cutting lathe.

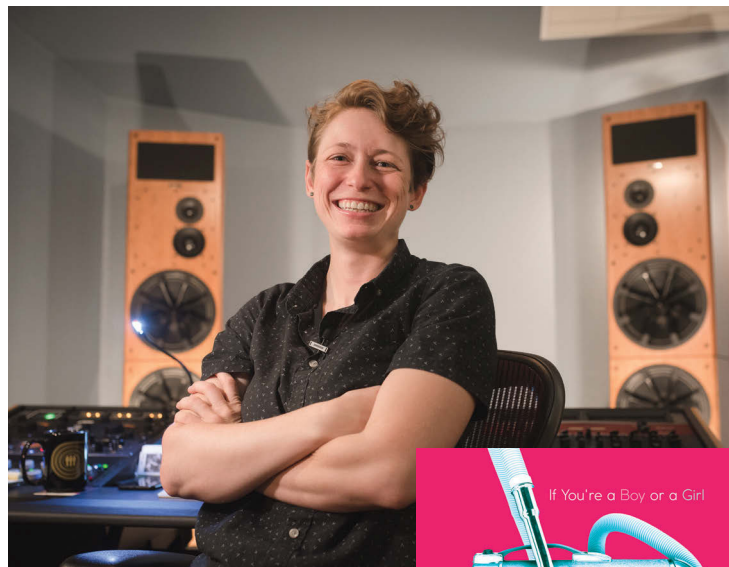
“We spent about a year restoring it the same way you’d restore a Triumph motorcycle—taking it down to every single fastener, and every bearing,” Cooley says. “Tens of thousands of dollars, full electronic re-servicing, recapping, modifications, cosmetics restoration. We took it as far as we possibly could go, and it sounds amazing.”

Cooley’s indie label clients, such as Domino, Tuff Gong, Stones Throw, and Light in the Attic, are releasing increasing amounts of vinyl, as are many of his clients for audio remastering/restoration work.

“I’ve always been involved in archival work for cult classics, but now it’s starting to get larger, as both indie and major labels with legacy artists are becoming interested in what we do here. This year, we did Bob Marley’s *Exodus* 40th anniversary box set and the full Isaac Hayes catalog.”

The Hayes reissues for Concord Records are part of a series celebrating the 60th birthday of Stax, and Hayes, of course, was integral to the Stax story—as a producer, arranger, musician and solo artist. For the reissues of albums including *Hot Buttered Soul*, *Black Moses* and *Shaft*, the label provided Cooley with original master tapes. As someone who approaches his work as equal parts record collector and engineer, Cooley is in his element working on such groundbreaking music.

“I originally got turned on to these records because they were sampled by my favorite hip-hop acts in the ’80s and ’90s,” Cooley says. “When I put up these tapes, it was shocking how good they sounded—the quality, the depth, the holographic sound. My goal became to help fans hear



Piper Payne’s new mastering business is Neato Mastering.

what Isaac Hayes heard in the control room when they tracked it.

“I followed the original mastering notes when it seemed appropriate, but there were some problems in the original pressings of this music where you realize it’s possible to have too much dynamic range, especially on vinyl. You don’t want to hear compressors working on the whole mix for a historic reissue, and you also don’t want to hear passages that are so quiet that you’re running for the volume dial. So those are issues that we addressed through careful volume rides during mastering that still honor the original work.

“Otherwise, there were little things like paper rustling during an orchestral passage, and jump cuts that needed to be touched up. But overall we wanted to preserve the sound of those original tapes, and to feel like by the end of our process the music is wider, taller and deeper than it’s ever been heard before.”

PIPER PAYNE, NEATO MASTERING

Piper Payne moved to San Francisco seven years ago to join Coast Mastering, where she worked with fellow mastering engineer Michael Romanowski until just about a year ago, when she made the brave leap to open her own facility in Oakland.

“I’m in Jack London Square now,” she says. “It’s easy to get to, clients can park. A friend of mine, Seth Drake, who’s a mastering engineer mostly in EDM world, has a studio in the same building called Shark Bite, and he was able to help me get into this space. It was a purpose-built mastering studio that was being used as a mixing studio.”

Payne, who is also a partner in Second Line Vinyl, a pressing plant that’s set to open in Oakland next February, says PMC was also instrumental in her move; Maurice Patist, president, sales and marketing, did much more than set up her BB5XBD monitors. “Maurice helped tune the room,” Payne says. “He’s a genius. I could say to him, ‘I like most of what I hear that’s happening, but I’m missing a little bit of 86 Hz,’ and he would just make a tweak and fix it.”

Payne brought much of her equipment over from Coast, including her Maselec transfer console and RADAR converters, feeding the Reaper DAW. “I’m using other software to do sample-rate conversion and for file

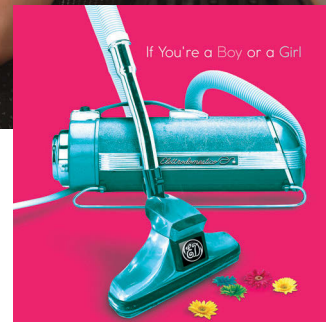


Photo: Tristian Rhodes



Pete Lyman is making a move to Nashville.

delivery, but I use Reaper for simple playback and capture,” she says. “I like the sound of it. It’s a great, flexible tool because you can put up different plug-in instances on sections of a song and have them play back seamlessly out of the workstation; I can treat a verse different from the chorus.”

Payne’s clientele includes a large percentage of bass-heavy music; one of her recent projects, Elettrodomestico’s *If You’re a Boy or a Girl*, carries an interesting balance of dark, beats-driven sounds and bright pop harmonies. The band and album are the collaborative effort of former Go-Go Jane Wiedlin and composer/vocalist Pietro Straccia. “Doing that project was such a funny, full-circle thing,” Payne says. “I’m a drummer, and in high school I actually was in a Go-Go’s and Blondie cover band.”

“Some things were a little difficult to master because the songs were recorded in different places at different times,” Payne continues. “A couple songs had electronic drums, but others had real drums. Some were based on a certain bass and others had a guitar that took the place of a bass. Many of these differences in production style resulted from the project being largely completed via correspondence while Jane was living in Hawaii and Pietro was here in the Bay. Pietro would write some hooks, or a verse and chorus, and then Jane would get back to him with lyrics and melody, and maybe switch the song around a whole bunch. And overall, this was a departure from what I knew as Jane’s usual sound, translated into a new thing.”

“The mixer, Travis Kasperbauer, did a great job; I needed to listen from his perspective and continue down that path. Manley SLAM!, the Langevin Mini Massive, GML 8200, Rupert Neve Master Buss—all of that would have been used to get the songs all to live in the same neighborhood.”

Payne also recalls manipulating the center image of these tracks to ensure that the two very different vocalists, both of whom sing continually throughout, would sit well together.

“At the very end of the project, Jane sat in through the assembly and she took a picture with me. Then she pulls an orange out of her

backpack: ‘You want an orange?’ Which was so funny because this Go-Go’s and Blondie cover band I had in high school was called The Oranges. That was weird—Jane Wiedlin standing in my studio handing me an orange.”

PETE LYMAN, INFRASONIC SOUND

Infrasonic Sound owner/operator Pete Lyman was surprised when producer Dave Cobb revealed he was moving to Nashville. Lyman laughs now, looking back, because he’s about to move out there as well, to start a new chapter for his family and his business.

Lyman has been working in the L.A. area for more than 15 years. His current facility, the two-room Infrasonic Sound, in Echo Park, shares a building with Vintage King, and business is strong. However, through his work with Cobb (including albums for Jason Isbell, Chris Stapleton and Sturgill Simpson), producer/engineer Vance Powell, and other artists and producers, Lyman has warmed up to Nashville.

“Obviously, people from Nashville are sending their work to someone in Los Angeles, so I don’t need to be there,” Lyman says. “But the Nashville music scene is close-knit. People want to have a real connection with the people they work with, and when I make those connections, it improves communication and makes a better record. It’s also a decision for my family. I have a young son and I’m excited for him to grow up in the country. Every time I go there, the only reason I want to come home is to see my family.”

Infrasonic in Echo Park will remain open; engineer Dave Gardner and studio manager Meghan Pochebit will stay on the West Coast, while Lyman builds a mirror studio on his property in Nashville.

“We have two rooms in Echo Park that are based around Maselec MPC1 consoles and PMC monitors, and PMC will help me set up a new room out there,” Lyman says. “I’ll be working out of PMC’s private mastering show-room in Berry Hill for a couple months while my studio is being built. And then we will put a pair of PMC BB5 XBDs in that room. There are a lot of great speakers I love, but these are the speakers I feel I do my best work on.”

“The idea is to make the Nashville studio as close as possible to my room in L.A. so I can travel back and forth,” Lyman says. The new studio will also include his other must-have equipment, such as Burl converters, Spectrasonics V610 limiters, and the Rupert Neve Master Buss Processor.

Meanwhile, as moving day grows near, Lyman has been wrapping up significant new releases, including reissues of Tom Waits’ complete Anti Records catalog, Chris Stapleton’s latest, and a spring 2018 release from alt-bluegrass group Old Crow Medicine Show that was produced by Cobb and recorded and mixed by Eddie Spear.

“This album already sounded good when I got it,” Lyman says. “It’s got a ton of energy. We mainly wanted to make sure the bass was consistent, because that’s such a big part of that band; it pushes the songs forward. I used that Rupert Neve Master Buss Processor a lot on that, as well as the Spectrasonics V610. I use the Spectrasonics really early in my chain, pretty much the first thing there, only for peak limiting—just helping the signal out. I’ve had those for two years and they’ve changed the way I work.”

“Dave is a very hands-on producer, and he’s always trying to get the best performance,” Lyman continues. “So, when you work like that, using minimal mics and you circle everyone in an amazing-sounding big room, and you have a bunch of players that understand how to play off of each other and you capture that moment, that’s the magic. The trick is really to know when not to touch something.” ■



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Michael Romanowski's studio, Coast Mastering, is situated within the Fantasy Studios complex in Berkeley, Calif..

LEARNING TO LISTEN

A Mastering Engineer's Guide to Perception // BY MICHAEL ROMANOWSKI

Listening. Its importance cannot be overstated, yet it's a topic that we don't actually spend very much time discussing. In the professional audio industry, we talk about new and old gear, software control, tips and tricks, production techniques and countless other aspects of the music-making process. But rarely do we stop to address the fundamental tool in our creative arsenal: Listening. What we hear and how we hear it.

There are many great resources on the mechanics of hearing—how the ear works or how the physiology and components of the ear translate sound waves into electrical impulses that the brain then interprets. But that is not what we are talking about here; the following is more about listening as it relates to perception. But before that, we need to understand that in the making of a record there are different ways to listen.

Three types of engineers contribute different skills in the process of making a song or record. First is the Recording engineer, who makes decisions like microphone choice/placement, et cetera, and commits the sound to some medium to be played back at a later time. Next comes the Mix engineer, who then takes those sounds and balances them, gives them motion or texture, cohesion, etc. And then the Mastering engi-

neer, who works on presentation of the audio, how it shows itself to the world. Is it soft, sharp, dynamic, quiet, flat, salty, blue? Or any of a number other adjectives used to describe what we hear?

For many, this final stage, mastering, remains “mysterious.” It is often referred to as a “Dark Art” ruled by “Golden Ears.” It has been described as magic or voodoo or the sprinkling of fairy dust on records. Yes, mastering engineers often do have very good ears, but there is no real mystery to the process. We do deal with minute adjustments across the audible spectrum, and we help to shape the overall tone and presentation of a musical piece. In essence, there are two sides to mastering, and both are important: the technical and the artistic.

The technical side deals with the delivery of the master to the manufacturer or distributor. It encompasses all of the details necessary to ensure that the very best possible master is what gets released to the world in whatever format required given the type of distribution—CDs, vinyl, lacquer for LP master, hi-res downloads, streaming service, etc.

The artistic side is what most people think of when any discussion of mastering comes up. This is the process of making adjustments to the

presentation of the audio to help ensure the best translatability across the infinite number and types of playback situations. It is helping turn a collection of songs in to a body of work.

Given all of the gear that I rely on every day, the most important piece of equipment I have is my playback environment and my ears. For me, it is more of a Zen-like process, one that starts with listening. It is absorbing the presentation of the audio. This is why I firmly believe the mix engineer and the mastering engineer need to be two separate people. Being able to separate the content from the presentation is a very learned skill.

The next step is to then make a decision about how I think it sounds—unbiased. Disconnected from the content, I am not listening to the lyrics, or trying to decide what type of guitar was used with what amp. My biggest question is, “How does it present itself?” When I reach that conclusion, the next step is to decide—usually in consultation with the artist/engineer/producer—how it should or could present itself. All of the in-between decision-making is just trying to find the best way to get from point A to point B. That is mastering.

Back to listening. All of the decisions I make are based on my perception. That is why the playback system is so crucial. If my perception is off, then so are my decisions. So I place a great deal of time and resources into making sure that my playback environment is telling me everything I need to know to make critical adjustments, however tiny they may be. Proper calibration and room tuning (hire a professional) are key. As are things like proper power, speaker and console placement, clocking, etc. All of this is on the physical side. Confidence in the gear gets you that much closer to confidence in your decisions,

Confidence in decision-making is based on confidence in your listening skills. I get asked all of the time when I am teaching classes, giving lectures and talking on panels about how to learn to listen. How do you develop those skills? It takes time, and it takes care, but ears can be trained.

First. Be active with your attention. Listen with intent. Try to identify what you are hearing. For example, pick any song. Pick out an instrument in that song. Describe what you hear. Start simple, and work your way down. Is it up front in the mix? Buried in the back? Left side? Right side? Somewhere in between? Point to where it sounds like it is coming from. Now, is it bright? Dark? Quick? Long? What frequency range does it cover? Does it sound natural? Are there other instruments that have a similar sound or texture that is getting in the way? Are their other sounds that have a similar texture that is additive and support that sound? What sense of space does it have? Near? Far? Dynamic? Flat? Answering all of these questions and so many more help you to actively pay attention. Name your perceptions. Say the words out loud. This will help re-enforce your perception.

And don't just name your perceptions out loud. Discuss them with other people. Many of today's engineers, when they were young, got together with friends to listen to music, because that's what we did. The latest record by a favorite or new band. While an awesome way to socialize around music, it was also a fantastic way to grow a listening experience.

For example, you might be listening to the lyrics when someone points out the sound of the snare. Now your attention has been refocused. You focus in on the snare and now start to identify what it might be that your friend brought to your attention. That then might inform the rhythm in the lyric, informing your original perceptions and altering them.

Sadly, we spend more time now listening in a solo situation, like on headphones or buds, or in a passive environment like background sound while at work. I love listening to music on headphones. I work on music every single day. But for pleasurable listening, I find myself in the secluded

THE MASTERING VS. MIXING SOAPBOX

One quick comment from atop one of my many soapboxes about mastering: Mastering cannot change the mix, period. It can only affect the perception of the mix. I'll pause for effect while you grok that. Mix is about balance of the content within itself. When the mix is complete and the audio is now ready for mastering, we get two channels. Left and right. That is it. The same goes for immersive audio such as surround, where again, the delivery is about the number of channels for playback, not the individual tracks for mixing.

You may then ask about delivering stems for mastering. For me, mastering stems is mixing. It says that the mix engineer didn't complete the job they were hired for and is passing it on to the mastering engineer to complete their work. Now the mastering engineer is required to make decisions about the balance of the mix, before even getting to the deep listening required to make subtle, unbiased and experiential adjustments to the perception of the project.

environment of my own good headphones as a way to really dig in. Then I will share those perceptions with others when in a group environment.

For many years, I have been hosting listening sessions at the studio where people bring songs to share, continuing to hone our listening skills. I would encourage you to do the same. You will be amazed at your listening growth.

Another question I get is: How can you train yourself to hear those things? Here is what I do. I stop and listen, out in the world. I take a moment wherever I am. I focus my attention on what I hear around me. Then I try to identify what I hear. Same questions as before. What do I hear? Where is it coming from? Is it moving? Does the pitch change as it does? Coming closer? Going further away? What other sounds have similar frequencies? Do they augment or obstruct?

I take this further and often find myself in the (relatively) quiet environment of the night or out in nature and challenge myself to listen for the very smallest details I can hear. Birds, frogs, distant planes, cars miles away, wind, leaves, crickets dominating the mids, etc. And I describe them. This helps me to dig deep into perception. When we talk about high-resolution audio, these are the types of minute details that give space and texture to a track.

The human ear and brain have evolved to be aware of change in sound. The Delta. We tune out those sounds that are static and non-threatening. By learning to focus your attention and recognize not only the Delta but also the static, you will also realize all that is sonically going on around you that you have let go unnoticed.

All of these very subtle things I hear help me to make better decisions in my work. I have said many times that mastering cannot change the mix, only affect the perception of the mix, and it is typically very tiny adjustments that make the biggest difference. Every tiny frequency adjustment meant to help focus attention more on the vocal, for example, also affects every other instrument that has this frequency in the range.

I will be posting ambience recordings from out in the world to give you something to practice listening to. Visit mixonline.com. And in the meantime, go out and practice listening. Focus. Pay attention. Be active. Describe it. Talk about it. Then apply that knowledge to your own work. You will notice that your ear can change.

Michael Romanowski is a Grammy-nominated mastering engineer and the owner of Coast Mastering in Berkeley, Calif.

CLASSIC HARDWARE PROCESSORS

20 Units to Feed a Top-Flight Signal Chain

BY STROTHER BULLINS

Signal chain processing resides inside the box more than ever, and alongside a DAW, plug-ins, control software, and various routing and data delivery tools. But the 20 hardware units listed below have been effectively deemed irreplaceable, as manufacturers continue to build these world-class products as well as introduce some very cool new designs to the marketplace. This product category provides equalization, compression/limiting, filtering, and effects processes to those who want to touch the knobs and feel the heat during the rituals of recording, mixing and mastering audio content.



Featuring the iconic 3-band EQ of the timeless Neve 1073 module, **AMS-Neve 1073 SPX** is a mic preamp/EQ 1U rackmount product with highpass filter and is notable for its extra functions, including integrated DI input and selectable insert, as well as phantom power, output level control, and optional digital I/O module for AES and FireWire connectivity.

An imprint of BAE Audio now offers its own 1173-style mic pre and compressor, which is the product debut for **UK Sound**, a subsidiary of BAE. Built in California, the **UK Sound 1173** is the result of a design collaboration among Los Angeles-based producer Warren Huart, gear designer Michael Stucker and UK Sound. The unit features the beloved 1073 preamp circuit and a studio FET compressor at a reportedly affordable price, and offers input and output gain and compression ratios of 4:1, 8:1, 12:1, and 20:1.

Designed by former Lexicon personnel, the **Bricasti Model 7 (M7)** stereo digital reverb processor delivers realistic, lush and adjustable acoustic environments. Built within a rigid 1U chassis, the unit includes 100 factory presets and 100 user registers with Favorites, accessible by the unit's front panel or optional M10 Remote Console. Its presets use three independently adjustable reverb engines: The first covers early reflections, the second covers late decay tail, and the third handles early reverberation below 80 Hz. Bricasti also offers the M7M, a plain-front paneled version of the Model 7.

The **Chandler Limited RS124 Compressor** is a re-creation of the legendary EMI/Abbey Road RS124, designed in 1960 by Abbey Road Head of Technical Bill Livy, Deputy Head Len Page and EMI Audio Designer Mike Bachelor. Most closely associated with recordings made by The Beatles at Abbey Road Studios, the RS124 was used in many applications, from tracking to bus compression, mixing and mastering. All these years later, Chandler Limited's RS124 Compressor is designed based on Abbey



Road Studios' favorite historic RS124s—serial numbers 60070B, 60050A, and 61010B, explains the company. Features include input control, output attenuation, Recovery (release) control and the unique “HOLD” setting, as well as adjustable attack and selectable output impedance, among others.

Upon its debut in late 2010, **Dangerous Music's BAX EQ**—inspired by P.J.



Baxandall's shelving filter topologies—was the buzz of the spring. It allows tone shaping, or equalization, via one potentiometer without the need for a switch to select boost or cut, just like the most popular hi-fi preamps of the past half-century. NYC-based mastering engineer Alan Silverman, in reviewing the unit, called it “a delicious desert with no calories... The design has characteristics that make it especially suitable for musical tone shaping—extremely smooth, flat shelves and minimal phase shift. The filter components reside in the feedback loop, leaving the main signal path pure. Dangerous Music's lead designer, Chris Muth, has skillfully exploited these advantages to create an exceptional mastering-grade, analog stereo EQ.”



Arguably, there is no compressor sound that is as famous and as ubiquitous as that of the **dbx Professional 160 Series**, first launched in the mid-'70s. Today, the 160XT compressor/limiter remains in dbx's lineup for good reason. Key features include its switch-selectable OverEasy and Hard Knee compression curves, and unique INFINITY + inverse-compression mode. Best of all, a new 160XT lists for approximately \$429—not bad to inject a proven classic into your rack.

There's compression, and then there's “distress.” I distinctly recall, arriving as a newbie intern at NRG Recording Services in late-'90s North Hollywood, that there was no hotter outboard processor than **Empirical Labs' Distressor**. Today, it remains a key part of the sound of rock 'n' roll, thanks to Dave Derr's initial inspiration from well-tweaked

1176s, LA-2As and the like. The Distressor is currently available in four configurations: the original EL8, the modified EL8-X with two additional functions (British Mode and Image Link), the stereo EL8-S (actually a pair of factory-matched Distressors), and the stereo EL8X-S (also with British Mode and Image Link).



The **Eventide H9000**—a new network-ready, multi-channel rackmount audio effects processing unit—reportedly features eight times the processing power of the H8000, with four

quad-core ARM processors serving as 16 DSP engines; eight channels of analog, AES/EBU and ADAT channels; 16 USB audio channels; and optional I/O including MADI, Dante, Ravenna, and more. The H9000 also introduces Eventide's FX Chains concept, allowing users to connect any set of four effects with flexible routing. The H9000's remote control application, called emote, is available for DAW users or for audio network-based applications.

While **Focusrite** has emerged as a leading force in the proliferation of AoIP-ready front-end I/O and processing, the company flagship ISA line endures with the premium ISA 430 MkII, a lovely channel strip featuring the original ISA 110 microphone preamplifier and ISA 130 dynamics section with VCA/optical compressor/limiter and gate, the latter of

which was originally designed by Rupert Neve for Sir George Martin's Neve console. Other features include filters, parametric EQ, shelving EQ, de-esser and optional stereo A/D card.



Madrid, Italy's **Heritage Audio** Elite Series is a new line of analog processors characterized by the company as "more affordable." The Elite Series features Carnhill transformers, hand-wound in St. Ives, England. Made to the same specifications as Heritage's 73JR, 73EQJR and DMA73 models, the HA-73 EQ Elite offers features such as a fully discrete 3-band classic equalizer with vintage correct inductors; high shelf at 12 kHz; midband selectable between six different frequencies; low shelf selectable between four different frequencies; inductor-based highpass filter, and more.

Lexicon, the go-to source for fine reverbs for decades, rolled the attributes of the PCM81 and PCM91 effects units into its PCM92, which offers 28 mono and stereo reverbs, delays and modulations with useful routing features centered on 1,200-plus presets incorporating time-proven classic patches from the Lexicon library. The company states that its Hall, Concert Hall and Random Hall algorithms have been used on "more than 80 percent of all recorded music." Other features include multivoice pitch shift, HiQnet System Architect compatibility, foot-controlled preset/parameter adjustment for live sound use, and much more.

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A smash hit with proven components gleaned from previous legendary products like the VoxBox (tube preamplifier section and ELOP compressor) and SLAM! (DI section), **Manley Labs' CORE** channel strip also offers a Baxandall-style EQ and a limiter on its output. Best of all, it's nearly \$2k less than the lauded VoxBox that inspired its development, but is reportedly just as flavorful.

Designed by Leif Masses, **Maselec's** MEA2 stereo EQ continues to be a mainstay in professional mastering circles. It is a 4-band, dual-mono unit with completely independent left and right channels. Each band comprises 21 frequencies, 21 steps of boost/cut ranging from ± 5 dB to 8 dB, and six settings for Q or bandwidth. Meanwhile, its Master Series sibling, the Maselec MLA2 compressor, is inspired by "old school" models while peppered with modern refinements. Both are of world-class quality and revered by many.

Though not hardware, **Millennia Media's** new HV-3R AELogic Remote Control Software is an essential digital tool designed for pairing with the company's HV-3R operable over Wi-Fi, using a high-resolution Android tablet client with Microsoft Remote Desktop. Meanwhile, Millennia still ships many of its world-class EQ, compression and multiparameter analog processors, including the NSEQ-2 Twin-Topology 2-channel parametric

EQ, NSEQ-4 solid state 2-channel parametric EQ, TCL-2 Twin Topology 2-channel compressor/limiter, and the STT-Origin, Millennia's flagship channel strip featuring preamp, compressor/limiter and EQ.



The lovely **Portico II** channel strip from **Rupert Neve Designs** is packed with 4-band EQ, compressor/limiter, highpass filter, de-esser, the "Silk" texture feature, and more. It is a true standout, even in RND's entirely top-shelf collection of analog processors. Years ago, while coordinating the Portico II's full review with engineer Rob Tavaglione, he shared this: "It's hard not to love it. The EQ in general, the de-esser, the superb compressor and the Silk features will surprise [its users] and demand daily usage."



Though **Solid State Logic's** individual analog processor offerings are now largely available as 500 Series or as proprietary X-Rack based modular units, the company continues to build what is arguably the world's most



"I was suspect at first, but after a few minutes with the Recoils I realized how much difference they made. Especially on the low end. I'm keeping these... they work."

~ Al Schmitt

(Barbra Streisand, Steely Dan, Ray Charles, Quincy Jones)



"I first heard them at AES and I told Primacoustic President, Peter Janis, that they were snake oil. I was dead wrong. Now I own 6 pairs, so much for my opinion... I can't record or mix without them."

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"They cleared up a cloudiness in the bass and mid bass that I had been battling in my studio. They're an affordable and effective problem solving product. I love these things!"

~ Ross Hogarth

(Melissa Etheridge, Keb' Mo', Jewel, Rooney, John Mellencamp, Jonas Brothers, John Fogerty)



"I love the Recoils! Before them my ProAc Response D monitors couldn't be turned up without the drivers breaking up. Now, the bottom end sounds tight and I can actually play the monitors louder."

~ Michael Brauer

(Coldplay, John Mayer, Leonard Cohen, Bob Dylan, My Morning Jacket, Paul McCartney)



"The Recoils have become my monitor standard. Wherever my nearfields go, my Recoils are right there underneath. I don't monitor with out them. Thanks for a great product."

~ Bobby Fernandez

(LA film scoring mixer - Clint Eastwood, Tim Burton, Alexander Payne, Peter Weir)



"The Recoil Stabilizers work very well.. they've made noticeable monitoring improvements both at home and sitting on top of an SSL in a multi-million dollar studio. The theory behind them makes sense and the results speak for themselves."

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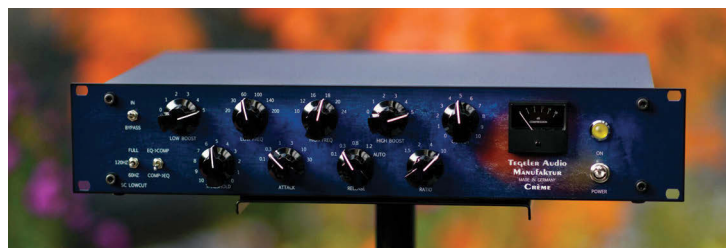
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popular, famous and beloved master bus compressor into a 1U rack, the G Series Stereo Bus Compressor. Features include a gain reduction meter, just like the one in the original SSL G Series console, external sidechain source select, auto fade with rate control automatic linear fade in/out control, and a remote connector for remote operation of the auto fade function. It sounds golden, perhaps platinum.

SPL's venerable **Transient Designer**, available in 2- and 4-channel versions, remains an invaluable tool to shape the dynamic response of any signal—notably useful on percussive sound sources, acoustic guitars and pianos. In use, it processes dynamic characteristics, emphasizing or smoothing attack and/or extending or shortening sustain times. Its processing is not dictated by signal level, so all material is processed equally, whether loud, soft or somewhere in between. With its simple two-knob user interface per channel—attack and sustain adjustments—the Transient Designer is the tweak-happy kind of outboard processor that you just have to use to understand its appeal.

TC Electronic's Finalizer 96K offers easily applied mastering and multiband compression tools that I would describe as "magic" on most modern pop mixes. Though it doesn't replace a good mastering engineer, it allows many access to some incredibly valuable tools. Features include 5-band, 24-bit stereo digital EQ for signal shaping; dynamic EQ, stereo adjust, Lexicon's Digital Radiance Generator, and spectral stereo image enhancements; real-time Gain Maximizer for normalization; variable slope multiband expander; multiband compression; multiband variable

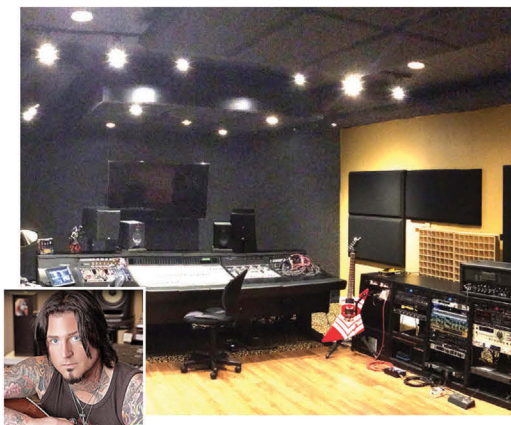
ceiling limiter; a manual or auto-fade tool; and more.



Tegeler Audio Manufaktur of Berlin, Germany is now shipping its Crème—a passive EQ based on the legendary Pultec plus a bus compressor—in North America. The brand was first recognized on the pro audio scene with its *Schwerkraftmaschine*, a plug-in controllable stereo analog vari-tube compressor featuring variable sidechain that works as a low-cut, tilt EQ, and a mixer to blend compressed and uncompressed signals, as well as transformer-balanced inputs and outputs.

Touted as serious yet seriously affordable gear, **Warm Audio** offers some classically inspired analog processing that is so lovable due to attractive pricing and fine performances. First, Warm's EQP-WA is a Pultec-style tube EQ featuring USA-made CineMag transformers and Tung Sol tubes, while the WA76 Limiting Amplifier and WA2A Tube Opto-compressor are inspired by the 1176 and LA2A, respectively. MSRP is way below \$1k for any one of these units. ■

What could Primacoustic do for *your* studio?



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



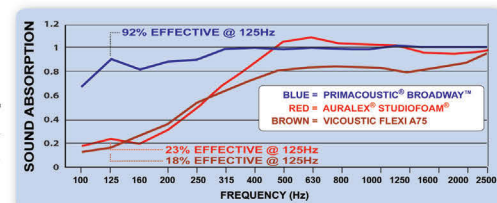
"We've got a mixture of bass traps, diffusion and clouds and the result was phenomenal. It ended up costing less than 25% of the custom solution and it turned out very cool."
~ **Keb' Mo'** - Grammy winner, roots-legend.



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GLENN ROSENSTEIN OPENS SATELLITE STUDIO IN MUSCLE SHOALS



Glenn Rosenstein

"There's something in the water," says producer/engineer/label owner Glenn Rosenstein about the Muscle Shoals area. Rosenstein—whose long career has included scores of big-name artists, from Alison Krauss to Ziggy Marley—has resided in Nashville since 1988, where he currently owns a well-

equipped personal use studio. Recently, he found himself in Muscle Shoals, Ala., working on a Wes Sheffield album with his friend and mentor Jimmy Johnson, and he says he could feel that "something is percolating here. There is a ton of new music that's charting, that's active, that's not just about what happened with Aretha or Wilson Pickett 40 years ago. This is new music, though it may be informed by what happened in the past."

Rosenstein, who also co-owns two labels under the Sony Entertainment imprint, was inspired enough to buy a house in nearby Florence, Ala., where he has installed an additional personal studio (his Nashville room, Skylight Studio, remains his home base). The new studio has been online for just a few months, but the equipment list is extensive because much of Rosenstein's Nashville gear can be transported from one location to the other.

"I use quite a few re-creations of old gear," Rosenstein says. "I have a bunch of equipment from Retro Instruments, Acme, Trident and Tree Audio; I now own six of their Branch channel strips. It's mainly a hybrid approach. We have some analog gear, and we do some work in Pro Tools. I'm experimenting with PreSonus' StudioLive 32 as a digital workstation controller."

Rosenstein monitors via Adam S3X-H loudspeakers; he also employs KKR's V8 Series 4 speakers and a pair of JBL 4311Bs that he's had since he caught the audio bug as a teenager. "I stuff in the old-school where I can, but we're not trying to create a museum," says Rosenstein. And in fact, he works on a thoroughly modern model, using extensive video, and proven algorithms and data analytics to position the artists on his 600 Volt/Sony music label.

"What's exciting is, I've heard of about eight other studios that have come online or will soon in this area around Muscle Shoals," Rosenstein says. "While it's not going to be another Nashville, it does remind me of Nashville 30 years ago."



Brian Tarquin in the new home of Jungle Room Studios Southbound

BRIAN TARQUIN MOVES JUNGLE ROOM STUDIOS TO FLORIDA

Brian Tarquin insists that he got rid of some of the gear from his New York studio before moving to Merritt Island, Fla., near Orlando, in 2014, but there doesn't seem to be any empty rackspace in Jungle Room's new home. He did make a few changes, though. While his previous studio was arranged around two Trident Trimix boards, the latest incarnation of Jungle Room was designed with a refurbished, new-to-him Trident 24 at the center.

Otherwise, with its extensive outboard gear and mics, and Tarquin's impressive guitar collection, Jungle Room appears much the same as it did up north. The main differences for Tarquin have more to do with quality of life.

"I still compose a lot for Telepictures, which is owned by Warner Bros.," he says. "I work on *Extra*, *TMZ*, crime-investigation shows. And I work for production libraries—in particular, the Germany library company Sonoton. But these days, obviously, you can live anywhere, and we wanted to get better schools for the kids, better lifestyle."

Tarquin has also found time for a couple of complex music projects for Cleopatra Records. *Orlando in Heaven*, which went to Number 6 on the Jam Band chart, is a tribute to victims of the Pulse Nightclub shooting. Tarquin wrote or co-wrote all of the songs, and guest artists include Chris Poland of Megadeth, Hal Lindes of Dire Straits, Tony Franklin from the Jimmy Page band, and the late jazz guitarist Larry Coryell, who made his last recordings for the album. Partial proceeds have been donated to Catholic Charities.

More recently, Tarquin made the veterans tribute album *Band of Brothers* (Number 21 on the Metal Contraband chart), featuring vocalists Phil Naro (Talas) and Jeff Scott Soto (Journey, Trans-Siberian Orchestra), as well as Steve Morse (Deep Purple), Ron "Bumblefoot" Thal (ex-Guns N' Roses), Trey Gunn (King Crimson), Jeff Watson (Night Ranger) and others. The project benefits Fisher House, which provides housing to the family members of hospitalized veterans.

Tarquin has a custom-built 30-foot mobile studio trailer that he used to capture performances by running a break out box to record live drums, bass and sax parts. "We recorded everything to analog and digital," he says. "We just put the musicians in my backyard."



Robert George, Amanda Anne Platt and Taylor Martin

SOUND TEMPLE, ASHEVILLE, N.C.

Robert George recently hosted local singer/songwriter Taylor Martin in George's Sound Temple Studios; Martin is working on a new album called *Song Dogs*, produced by artist Amanda Anne Platt.

"Amanda and Taylor brought in some tremendous studio players from Nashville and Atlanta, as well as our hometown of Asheville," George says. Martin's band included Richie Jones on drums, Matt Dufon on bass and background vocals, Lyndsay Pruett on fiddle, Matt Smith on electric guitar and pedal steel, Woody Wood on electric and acoustic guitar, and Josh Shilling on keyboards.

"There's a huge range of genres that influence Taylor's tracks, and it was a fun challenge to capture tones using mics, techniques and preamps that pay homage to country, blues, R&B, '70s rock and Americana," says George. "Finding a vocal mic to complement Taylor's uniquely raspy voice was easy, though. We did a quick shootout and the ADK Z-251, with vintage Telefunken 12AX7, was perfect."

Basic rhythm tracks were captured live in Sound Temple's live room, three iso booths and two additional sound-locks. Designed by Wes Lachot, Sound Temple features an SSL Matrix console and a range of equipment from Neumann, Telefunken, Royer, AEA, API, A-Designs, Great River and more.

SESSIONS



Jack Miele and Benny Turner

At the Music Shed, Jack Miele engineered, mixed, co-produced and played guitar on Benny Turner's *My Brother's Blues* album, which re-imagines songs written by Turner's brother Freddie King. Aloe Blacc was in, as well, with Miele mixing and mastering a single, a cover of "What a Wonderful World" that was tracked live at Preservation Hall. Miele also produced and mastered a self-titled rock album by The Shadow and the Thrill, featuring Tony Cardenas and Brentt Arcement. The album was mixed by Sylvia Massey and mastered by Vlado Meller.



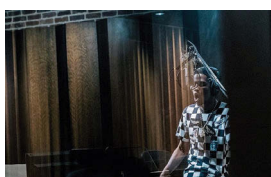
Seth Firkins and Future

Epic Records rap artist Future was a regular at 11th Street Studios while completing work on his albums *Future* and *Hndrxx*. Engineers Seth Firkins and Eric Manco and assistant Mike Roett handled recording duties, working with a host of producers, including Southside, Metro Boomin, D.Y., Richie Souf, TM88, Zaytoven and Cassius Jay. Atlanta R&B act 112 worked in Studio B with producer Blac Elvis, songwriter Felly The Voice and engineer Anthony Smith. The team recorded six songs, including the singles "Strawberry" and "Dangerous Games" for the eOne-released comeback album *Q Mike Slim Daron*. Other recent studio guests include Lil Durk in Studio A with Phillip "Dockz" Cromwell, and Rich Homie Quan in Studio A with engineer Firas Quick.



Brad Blackwood

Just a few recent projects from Brad Blackwood's busy mastering studio: Lukas Nelson and the Promise of the Real's new self-titled album, featuring guest appearances by Lady Gaga and Willie Nelson; Supersonic Blues Machine's album *Californisoul*—this blues-rock project was formed by Lance Lopez, Fabrizio Grossi and Kenny Aronoff and includes guest performances from Billy Gibbons, Steve Lukather, Robben Ford and others; and Teenage Wrist's new album produced and mixed by Carlos de la Garza for Epitaph. Blackwood also has new music in the works by Escape the Fate, Myles Kennedy and Umphrey's McGee.



Pierre Bourne in Studio A

EUPHONIC MASTERS, MEMPHIS

Just a few recent projects from Brad Blackwood's busy mastering studio: Lukas Nelson and the Promise of the Real's new self-titled album, featuring guest appearances by Lady Gaga and Willie Nelson; Supersonic Blues Machine's album *Californisoul*—this blues-rock project was formed by Lance Lopez, Fabrizio Grossi and Kenny Aronoff and includes guest performances from Billy Gibbons, Steve Lukather, Robben Ford and others; and Teenage Wrist's new album produced and mixed by Carlos de la Garza for Epitaph. Blackwood also has new music in the works by Escape the Fate, Myles Kennedy and Umphrey's McGee.

BLUE ROOM SOUTH, ATLANTA

At Blue Room South head engineer Keith Dawson recorded and mixed tracks for YFN Lucci. Dawson is also working on a variety of projects for indie artists and writers such as Steven Glover, who has been in writing new music for the hit show *Atlanta*. Other artists who have worked in Blue Room recently include Pierre Bourne, TI and Lauren Hashian.



Tony Succar's brass session

David Palma, Javier Casa, Adrian Morales-Demori and Pascual Matera.

HEIGA STUDIOS, MIAMI

Producer Jean Rodriguez worked on vocals for Ha*Ash's upcoming album, including the single "100 años" featuring Prince Royce. Also at Heiga, arranger and producer Tony Succar tracked a new single with a brass section including Dante Vargas, Gerar Rodriguez, Jorge Dobal, Ramon Benitez, David Palma, Javier Casa, Adrian Morales-Demori and Pascual Matera.



Daddy Yankee, Noisematch CEO Alex J. and Luis Fonsi

Two music highlights from Noisematch Studios' year were the smash song "Despacito" by Luis Fonsi and Daddy Yankee, produced by Andrés Torres and Mauricio Rengifo, and J Balvin and Chyno Miranda's upcoming single. The studio is also working on a new educational platform called MusicMastermind.TV, which teaches viewers about the inner workings of a recording studio.

GWAR LIVES!

Metal Showmen Track *The Blood of Gods* in Virginia

BY RONAN CHRIS MURPHY



GWAR tracked basics in White Star Studio (Louisa, Va.), while overdubs were cut in the band's Richmond, Va., compound.



Producer/engineer/musician Ronan Chris Murphy (King Crimson, Lucas Lee, etc.) recently produced Gwar's first album without longtime lead singer Dave Brockie (aka Oderus Urungus). Murphy kindly sent Mix a detailed account of the tracking and mixing work in Virginia and California. Find more about the making of *The Blood of Gods* at mixonline.com.

As Gwar geared up for its 14th studio album, they had to figure out how to do it without their longtime lead singer, a creative focal point of the band, who had passed away in 2014. Brockie was adored by fans and many chimed in that the band should have called it quits. However, Brockie himself had said that Gwar should go on even after all of them were dead and gone, and we planned to honor his wishes.

Gwar has been on a short list of artists I dreamed of producing for years, and at the end of 2016, I was brought on to produce, engineer, mix, master and perform on the survivors' next album, *The Blood of Gods*, which features their new lead singer, Michael Bishop (Blothar the Berserker).

When I heard the songs the band was working on, I could tell that Gwar was tapping into their punk roots as well as a lot of classic rock from bands like Sweet, Motorhead and Celtic Frost. Of course, the album needed to bring the shock, comedy and storytelling that define the band, but my goal was to help make a music-first Gwar album.

Sessions commenced with drum recording at White Star Sound in Louisa, Va. White Star is built inside an old barn set in bucolic countryside and caters to singer-songwriters—a seemingly unusual choice to host Gwar sessions. Owner Chris Keup says that no one believed him when he said Gwar was recording there. But the studio was well-suited for our project: It has a big wooden live room, a solid mic closet and a rack of API mic pre's from the old console in Sunset Sound's B room.

All the drums were tracked through those pre's except for overheads, which were through a pair of Shure KSM32s into A Designs Pacifica pre's (a combo that's been part of most of my drum sounds for 15 years). An

AKG D112 for kick drum, the overheads and a single Shure SM57 on snare make up the majority of the drum sound on the album.

After tracking drums and some of the guitars at White Star, we moved to Richmond to work on overdubs at Gwar's own facility, the Slave Pit. We took over the rehearsal room and lounge to record. I brought in a small rack consisting of A Designs Pacifica mic pre's, an Empirical Labs Distressor, a Pete's Place BAC 500 compressor and Electrodyne 511, and A Designs EM-PEQ EQs.

Guitars included several Les Paul-style instruments from Love Rock, as well as Gwar Signature models from Schecter. The sound on each song is mostly two guitars hard-panned left and right. We also spent a lot of time working on tones and scaling back the distortion; this maintains a lot of percussive punch. About 5 percent of the electric guitars were recorded through a Fractal Ax-FX, where guitarist Mike Derks (aka Balsac the Jaws of Death) had programmed some special effects. The rest were captured with a single Shure SM57 on a Marshall 4x12 cabinet and various tube guitar amp heads.

We used a Peavey 6505 for a few super-saturated sections, but most of the album was done with vintage Marshall heads. Guitarist Brent Purgason (aka Pustulus Maximus) had a nice collection of old JCM800s with different tubes, transformers and power configurations. The guitars usually got a couple dB of compression from the BAC 500 compressor and often one or two dB of EQ from the 511 or the EM-PEQ.

One of the challenges with vocals on *The Blood of Gods* is that Michael Bishop has such a huge range as a vocalist—not only in terms of dynamics and the notes he can hit, but also in terms of style. I brought my Pearlman TM-1 mic along for the task.

We set high standards for ourselves to make this album and averaged about 14 hours a day in the studio for a couple months. In the end it was worth every minute. *The Blood of Gods* honors the band's past and moves the band forward. Gwar lives! ■



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Tech // new products



ANTELOPE AUDIO DISCRETE 4, DISCRETE 8 INTERFACES

Preamps, Plus Modeling of Iconic Gear and Microphones

Antelope Audio's Discrete 4 and Discrete 8 Microphone Preamp Interface brings a new level of flexibility, power and sonic excellence to engineers and music producers. The Discrete 4 Microphone Preamp comes with four console-grade, 6-transistor discrete preamps, while the Discrete 8 features eight console-grade, 6-transistor discrete preamps. Both offer 121dB dynamic range conversion and rock-solid clocking. Both units offer Accusonic 3D microphone and preamp models, guitar amps, transformer and tube FX, and a huge selection of classic vintage gear, all of which are now accessible in the DAW via the new AFX2DAW plug-in.



PROPELLERHEAD REASON 10 PRODUCTION SOFTWARE

New Sounds Abound in Major Upgrade

Propellerhead Software Reason 10 (\$129 upgrade, \$449 new) offers a bevy of new sounds including the Europa Shapeshifting Synthesizer and the Grain Sample Manipulator. Europa is a dynamically generated wavetable synthesizer while Grain opens up the world of granular synthesis for Reason users. Reason 10 also includes three new sampled instrument collections created in collaboration with Soundiron. Klang Tuned Percussion includes 10 high-quality sampled melodic percussion instruments. Pangea World Instruments (includes 11 instruments) adds a unique flavor to any genre of music. And Humana Vocal Ensemble is a collection of choirs and solo vocals.



MACKIE ONYX USB INTERFACES

Desktop I/O Comes With Tracktion and 16 Plug-ins

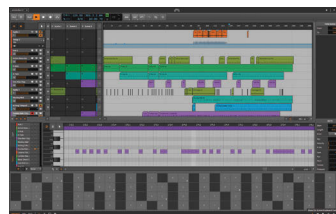
Mackie's Artist 1x2 (\$139.99) and Producer 2x2 (\$209.99) Onyx USB Interfaces feature Onyx mic preamps, 24-bit/192kHz recording, and zero-latency direct monitoring. Artist 1x2 features one Onyx mic pre, a 1/4-inch line input, and a Hi-Z instrument switch, while the Producer 2x2 offers dual Onyx mic pre's with XLR/TRS combo inputs and Hi-Z instrument switches per channel. The units ship with 16 plug-ins, including Equaliser, Compressor, Reverber8, and a full license of Tracktion T7 DAW + DAW Essentials Collection.



MOTU 828ES INTERFACE

Bountiful I/O, Plus New Control Room Features

The newly redesigned 828s interface from MOTU (\$995) features ESS Sabre32 Ultra DAC technology, a new front panel design, and 60 total channels of I/O, offering 48-channel mixing and 32-bit floating point DSP effects processing. The 828es connects to a Mac, PC or iOS device over Thunderbolt or USB. New control room features include a built-in talk-back mic with front panel "talk" button and "A/B" monitor select, mute and sum-to-mono buttons for the main outs. Additional I/O includes eight balanced (TRS) analog in/out (with DC-coupled outputs), separate main outs on XLR jacks, two banks of 8-channel optical I/O (switchable to stereo TOSLink), RCA S/PDIF digital I/O and two independent front panel headphone jacks with volume controls.



BITWIG STUDIO 2.2

Improvements Include Expanded Sound Content

Bitwig Studio 2.2 (\$169 upgrade, \$399 new) offers multiple ways to integrate with other technology, including MIDI, MIDI Clock Master/Slave, MTC, CV & Gate and hardware audio clock. Additionally, Ableton Link enables musicians to play in sync together across various software applications, platforms and mobile devices. Other features include Time Shift Device for fine-grained time adjustments anywhere in the device chain, four new modulator devices and Polynom, allowing users to feed modulation signals into a mathematical formula to achieve sophisticated and flexible transformations. Added sound content includes a Bösendorfer grand piano, Farfisa Syntorchestra, Philicorda and the very rare model VOX Continental Baroque.



PRESONUS FADERPORT 16 CONTROL SURFACE

16 100mm Faders, Transport Control, Plus Session Navigator

The FaderPort 16 Mix Production Controller from PreSonus (\$999.95) connects via USB 2.0 to provide precise tactile control over any DAW's mix and automation functions, including complete transport control. Features include full level, solo and mute control over 16 channels at once, with 16 touch-sensitive, motorized, 100mm faders, and 89 buttons covering 102 different functions. The Session Navigator provides easy access to eight mission-critical functions for maximum flexibility. No driver installation is necessary.



LINDELL WL-3 500 SERIES CHANNEL STRIP

Preamp, EQ, Compressor, Filter and More

The WL-3 Channel Strip (\$1,199), designed in conjunction with Paul Wolff offers a transformer-coupled microphone and line input, transformer-coupled output, 60mm fader, a compressor, 3-band EQ with sweepable mids, and 80Hz high-pass filter. The VCA compressor features threshold, auto gain makeup, gain, and a mix knob for instant parallel compression. The preamp offers 65 dB of gain

and features switchable phantom power and a polarity reverse switch.



STEINBERG Wavelab 9.5 SOFTWARE

Release Brings Advanced Spectral Editing

The new WaveLab Pro 9.5 (\$579.99) and Elements 9.5 (\$99.99) focus on spectral editing, offering an overhauled Spectrogram with many additional display settings that give a meticulous attention to frequency detail. Both introduce RestoreRig, a new plug-in suite that boasts three modules: DeNoiser, DeBuzzer and DeClicker. With its restoration toolset, RestoreRig detects and removes unwanted noise and audio artifacts in real time. New features exclusive to WaveLab Pro 9.5 include the Wavelet display that analyzes and displays musical content based on pitch scaling. The Spectrum Editor comes with many new selection tools and the implementation of the Audio Inpainting technology for removing unwanted noise from any audio material and then filling in the omission by analyzing the adjacent spectral information.

New Sound Reinforcement Products



ALLEN & HEATH SQ SERIES DIGITAL MIXERS

Versatile, Affordable, Hi-Res Live Consoles

Allen & Heath's new SQ Series Digital Mixers (prices start at \$2,999), featuring the company's 96kHz XCVI FPGA engine, are designed for a wide range of applications. Features include a capacitive touchscreen, illuminated rotary controls and softkeys with custom naming on fader strips. Two models offer a choice of size and control configuration. The rack-mountable SQ-5 has 16 onboard preamps, 17 faders and eight softkeys, while the SQ-6 provides 24 preamps, 25 faders, four assignable rotary controls and 16 softkeys. Both feature a networking slot for optional Dante, Waves and other cards.



NEXO NXAMP MK2 AMPLIFIERS

Network Operation Plus Touchscreen Control

Yamaha Professional Audio has announced the release of the NXAMP4x2 MK2 and NXAMP4x1 MK2 amplifier models (\$TBA). Both units come in a light, sleek 2U package with front-panel touchscreen control offering direct access to parameters including Array EQ, Mute and Meters, EQ Detail, User EQ, Inputs, Load Monitoring, Log, and much more. A native, dual Ethernet port brings seamless integration with NEXO proprietary NeMo system management software. Amplifiers can be remote-controlled and daisy-chained via a standard Remote Control card, with optional Dante, EtherSound and AES/EBU network cards available.



LECTROSONICS SMWB AND SMDWB WIDEBAND TRANSMITTERS

Innovative Features Including Recording to SD Card

Lectrosonics' "wide band" SMWB (\$2,060) and SMDWB (\$2,150) transmitters include the ability to act as a transmitter or as a body-worn recorder, to go with wideband tuning. The units come in several frequency ranges: A1 (470 – 537 MHz) and B1 (537 – 614 MHz) for the North American and export markets, and B2 (563 – 640 MHz) and C1 (614 – 691 MHz) for certain export markets. The SMWB and SMDWB units can be configured either as a transmitter or a recorder, with files stored on Micro SD card memory. Audio files are recorded in the industry standard Broadcast Wave (.WAV) format at 24 bits, 44.1kHz sample rate.



SONIFEX AVN-PXH12 AES67 MIXER

Single-Rackspace Mixing of AES67 AoIP Sources

The AVN-PXH12 simultaneously monitors and mixes up to 24 AES67 AoIP sources in a compact 1U rack to a speaker/headphone combination. Used for OB truck monitoring or confidence monitoring of an AoIP installation, the AVN-PXH12 features front-panel Mute and Solo across one channel, or a handful of channels, 'Normal' and 'Alternate' input switching, speaker mute, plus busing to headphone left ear, right ear, or a stereo mix. Other features include 1/4-inch and 3.5mm headphone outputs, a speaker output with separate LS and HP volume controls, 10 GPIO ports, dual AC/DC power supply, and a speaker mute button.

Tech // reviews

MASTERING REFERENCE TOOLS

Multifunction Software for Fine-Tuning Mixes

NUGEN MASTERCHECK PRO

MasterCheck is a powerful, multifunction toolkit designed to be the last plug-in in your mastering chain. It is basically a digital crystal ball that lets you hear what your master will sound like when standing up to other content, as it's streamed on a variety of platforms. The marquee feature, only available in the Pro version, is the codec preview, which allows real-time encoding and auditioning of lossy data compression algorithms used by different services. That said, both the Pro and standard versions offer a good number of handy meters and utilities that help to contextualize your track better in the streaming universe.

In its simplest view mode, MasterCheck Pro looks identical to the standard version, displaying three vertical, bar graph-style meters, plus large PLR and LKFS values at the top of the display. The first bar graph is an LKFS meter. As with most Nugen plug-ins, the level of customizability throughout the interface is deluxe. With the LKFS meter, six different ranges can be defined by the user and color-coded with a choice of more than 100 colors. This allows the ability to define your own desired nominal value, while also painting a tolerable range around it. The second meter is a PLR meter, which again is fully customizable in terms of color per value. PLR stands for “peak to loudness ratio.”

Like the TT Dynamic Range meter, the PLR in MasterCheck could be anchored to the top of the bar graph, extending down in a way that looks similar to gain reduction in a plug-in compressor. Alternatively, the stretchy PLR blob could ride beside the LKFS meter and extend up from that meter's value position. I liked this option because it kept my eyes in the same place on the display. It also did a nice job of illustrating when my average LKFS value was smashing into the headroom. Directly above the meter, there is a long-term PLR measurement, while a box at the top of the plug-in interface shows the momentary PLR value.

The last bar graph is a dBTP (True-Peak) meter. Traditional peak metering measures the value of the loudest digital sample. True-Peak measurements oversample the audio to reconstruct pieces of the waveform that exist between samples, which may exceed the value of the loudest sample. One concern is that these inter-sample peaks, even in the original PCM version of a master, can potentially overdrive consumer DA converters. An even larger concern is that lossy compression codecs are likely to misrepresent these peaks, causing noticeable distortion or artifacts. Accurate True-Peak metering is a must when preparing masters for downstream lossy encoding. MasterCheck's dBTP metering can follow either the universal ITU-R BS.1770 standard, or Apple's proprietary “afclip” algorithm.

While the LKFS bar graph and its accompanying numeric display show short-term or “sliding” loudness levels, a large box toward the top of the GUI shows the long-term loudness as a single numeric value. A second, smaller number displays the target loudness, which can be set to reflect the standards used by different streaming services. With a click of the “Offset to match” button, the plug-in will automatically boost or attenuate the level of the master to match the target playback level. Alternatively, a reference track can be fed from another DAW track and this function will offset the loudness of the work track to match the reference. In either case, removing the “louder is better” factor allows more accurate judgment of what is really going on in the track.

Finally, the Pro version of MasterCheck offers the ability to monitor in real time through the codecs used by Spotify (Vorbis), Apple Music/iTunes (AAC-LC) and TIDAL (AAC-LC), as well as the FLAC and the new up-and-comer, Opus. Five codec slots are available, and each can be loaded with a different codec, or a redundant codec with alternate settings. This provides the ability to quickly switch between codecs and compare each to the uncompressed original version.

MasterCheck turned out to be the missing piece to my mastering workflow. I typically master at 24-bit/96 kHz using Studio One Pro. I wish I could say that I typically buy reference materials from HD Tracks, but more often than not I'll have a playlist of songs prepared by the client in Apple Music or iTunes. In other cases, I'll put together my own Spotify playlist of reference materials. That plays at 44.1 kHz



MasterCheck Pro allows real-time encoding and auditioning of lossy data compression algorithms used by different services.

PRODUCT SUMMARY

COMPANY: Nugen Audio

PRODUCT: MasterCheck Pro

WEBSITE: www.nugenaudio.com

PRICE: MasterCheck \$129 /
MasterCheck Pro \$199

PROS: Allows real-time preview of codecs and loudness normalization

CONS: CPU-intensive, which can lead to overload errors

through a separate converter, routed back to my monitor controller.

When flipping back and forth between the two sources, I have always had to manually and continually compensate for the differences in playback level between the two sources. With MasterCheck I could easily match my master to the Spotify or Apple Music LKFS standard and immediately level-match with my guide tracks. When I could start to feel my loudness level drifting from the references, due to compression or EQ changes, a quick click of the refresh button in MasterCheck tweaked the compensation. Even when the plug-in was set to compensate level, it continued to read and meter the true loudness level in the background, so it always had an adequate sample upon which to base the refresh.

The codec preview was also really handy for a couple of reasons. For one, the AAC-LC with Apple Music settings really colored the sound. The bottom end would frequently shrink, the lower midrange backed off, and the upper-mids would sound a little crisper and harsher. Unfortunately, most people don't want to juggle different versions of the project for different services, but a case could be made for doing so. Overreacting to compensate for these codec-borne changes had an adverse effect when switching to a different codec, so creating multiple versions to cater to different services seemed to be a plausible approach.

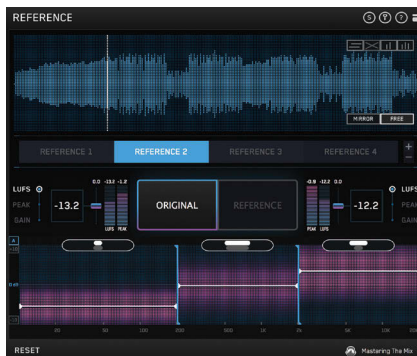
My only complaint about MasterCheck Pro was that it is a bit of a CPU hog. I started playing with it on projects that were already loaded up with plug-ins, and MasterCheck Pro would break the camel's back, so to speak. This was true in Studio One Pro and Pro Tools|HD (no HD card), running on an i7 Mac Mini with 16 GB of RAM. When inserting the MasterCheck plug-in first and building a processing chain afterwards, particularly when leaning toward more UAD processing, this was not an issue.

When working with MasterCheck, I challenged myself to conform my masters to the Spotify standard of -14dB LKFS, rather than just making them loud. It proved a rewarding experience, as I achieved what, to me, were better-sounding results. On top of that, it took less processing to arrive at a final product. Not going loud is still a tough sell, but I'm hoping that with MasterCheck helping to illustrate benefits of dynamic mixes, and the knowledge that Spotify and Apple Music are no longer rewarding over-compression, there is light at the end of the tunnel.

MASTERING THE MIX REFERENCE

Reference is the second plug-in from newcomers Mastering the Mix. The company's first effort, Levels, is more of an LKFS loudness meter, with some cool features for analyzing masters. Reference is designed for comparing a master to existing source material or to the unmastered version of the same track. Altogether, the plug-in provides some very unique and useful visual feedback, all while easing the process of A-B'ing tracks.

Operation of the Reference plug-in begins with loading in reference tracks by drag-and-drop or browsing. I was able to load tracks at different sample rates, encoded with different codecs, as well as PCM, and everything



The handy Trinity Display shows frequency balance, stereo width and compression compared to a reference track.

PRODUCT SUMMARY

COMPANY: Mastering the Mix
PRODUCT: Reference
WEBSITE: www.masteringthemix.com
PRICE: \$65.62
PROS: Great-looking graphics, useful insight into masters
CONS: No streaming integration

was quickly converted to play correctly within the plug-in without issues. Multiple tracks could be loaded, with tabs to switch between them. Each was displayed with a large and detailed waveform view.

If referencing the unmastered version of the current track, a handy "mirror" function can be enabled, which automatically aligns the two versions and syncs Reference's transport to the DAW's transport. Even when moving the cursor around the Pro Tools timeline, the plug-in's transport kept up. This allowed the timing to match perfectly when flipping back and forth between the two versions.

The bottom half of the GUI features a set of peak and LUFS meters for both the Original song that is being mastered and the selected reference track. A level-match function attenuates the Reference to match the loudness of the Original, making for more honest judgment of effects being applied. This process continues to track and adjust the level-matching as LUFS data is updated, without the need to refresh manually. Toggling between the two tracks is done by clicking on Original and Reference buttons, or on a single customizable quick-key. This made it easy to A-B, even with my eyes closed.

Along the bottom of the GUI is an interesting part of the software, the Trinity Display. This area can split the frequency spectrum into a choice of up to five frequency bands, each of which can be soloed when A-B'ing against reference material. Each band shows a level bar, indicating whether that band is louder, quieter or equal to the same range in the selected Reference. Waves of purple dots moving toward or away from that bar indicates whether that band is more or less dynamic than the Reference, with their density indicating the difference. Horizontal bar graphs for each frequency band compare the stereo width of two sources. Relative gain, dynamic range, and stereo width can also be displayed numerically in a box inside each band.

I found the frequency-dependent level and compression metrics to be really useful when comparing my master to a third-party reference track. If a particular range was much more compressed in the Reference, I could address that range in a multiband compressor while watching feedback from Reference. With a combination of soloing, A-B'ing and watching the visuals start to match up, I was often able to emulate the texture of the other track quickly. At that point I could decide whether that sound truly fit.

The width displays gave me somewhat mixed results. These were accurate when comparing the mastered track to the unmastered version. Places where I had deliberately widened or narrowed the image were generally reflected accurately. In some cases, however, after clearing mud out of a certain frequency range, other details were able to shine through, effectively widening the perceived image.

If you're looking for a quick way to match sample rate and loudness between your masters and reference tracks, this a solid tool. The extra level and compression metering are handy for grasping the direction in which you need to start your work. Keep in mind that you can only import songs that are downloaded or ripped from CDs. I'd love it if they could integrate a streaming service, but for now you'll have to rely on your personal library or buy the songs on the client's reference list from iTunes or HD Tracks. ■

NEWFANGLED AUDIO ELEVATE BUNDLE

Transparent Multiband Mastering Limiter/Maximizer and EQ



Fig. 1: Elevate's Main Parameters view shows key controls for the Limiter, Transient Emphasis and Spectral Clipper processing blocks.

Newfangled Audio's new Elevate plug-in bundle takes a different approach to multiband limiting and equalization: The linear-phase filters it uses for both processes are triangular, rather than bell-shaped. The triangular shape reportedly reduces pre-echoes, artifacts produced in conventional linear-phase filters that blur transients, especially when filtering the bass range with a steep slope. The bundle's included Elevate mastering limiter/maximizer and EQivocate equalizer both use up to 26 frequency bands modeled on the frequency-response curve of the human ear. The result is highly transparent processing—with optional spectral clipping—that's tailor-made for mastering.

The bundle's plug-ins are distributed by and available from Eventide in AU, AAX Native, VST2 and VST3 formats. I reviewed the AU plug-ins in Digital Performer 9.5, using an 8-core Mac Pro running OS X 10.9.5.

Clicking on Elevate's Main Parameters button gives you control of soft-knee look-ahead limiting, transients emphasis, and the final spectral-clipping stage (see Figure 1). Three sliders adjust the Limiter's Gain (threshold), Speed (combined attack and release times) and Ceiling. Above these controls is a dropdown menu for selecting the number of frequency bands the adaptive algorithms in the Limiter and Transient Emphasis processing blocks will use. The Limiter's Adaptive Gain function applies greater gain reduction to frequency bands in which

the signal level is nearing the threshold set by the Gain slider; you can adjust the number of decibels each band's level can differ from the others. Exercise caution here—higher settings can change the tonal balance of your mix (though sometimes exactly what's needed!). Activating the Adaptive Speed button optimizes the attack, release and look-ahead times for each filter band (set nominally by the Speed slider) in editable percentage terms, reducing pumping and breathing.

Elevate's Transient Emphasis slider preserves or, at high settings, emphasizes transients that would normally be squashed by the look-ahead Limiter. When you increase the value in the percentage field, you increase the degree to which each band can emphasize transients independently. Raising the Spectral Clipper's Drive slider increases gain at its input (directly from the Limiter's output), increasing loudness and distortion. Similar to a knee control, editing the Clipper Shape percentage field changes the shape of the clipper's gain curve from soft to hard. The Limiter, Transient Emphasis and Clipper processing blocks can be separately bypassed, as can the Adaptive

Gain, Adaptive Speed, Adaptive Transient and Clipper Shape functions.

Fine-tune Elevate's processing by working in the GUI's four sub-modules. In all but the Clipper sub-module, you can solo one or more frequency bands. In the Filter Bank sub-module, you can select the number of bands for processing, distribute the filters' center frequencies using Mel scale (in which pitches have perceptually equal distances from one another) or your own custom scale, add and remove bands, and adjust each center frequency. In the Limiter/EQ sub-module, you can boost or cut gain in each frequency band, draw a gain curve with your mouse (see Try This), and view I/O and gain-reduction levels. In the Transient sub-module, you can use sliders to adjust the amount of emphasis added to transients in each frequency band and view the processing amount in per-band meters.

At the GUI's left and right margins are respective I/O meters—showing both RMS and peak levels, and numeric readouts for peak-hold values—and separate trim controls for Elevate's I/O levels. A global gain-reduction meter is also provided. Centrally located near the top of the GUI, three al-

TRY THIS

To quickly fashion a custom response curve for multiple bands in Elevate's Limiter/EQ or Transient sub-module, click-and-hold your mouse and then drag it across the bands at the desired levels for each fader.

ternate meters graphically illustrate wideband input vs. output levels, gain reduction amounts across the frequency spectrum, or I/O and gain-reduction levels per band. Clicking on the Settings button gives you access to dither options.

Elevate's presets management includes a Compare function but no Undo/Redo. Activating the Gain Lock button prevents Elevate's output levels from changing as you browse presets, although the ratio of its Gain to Drive settings—and thus each preset's tonal character—is maintained. A helpful Auto function helps you make A/B comparisons less tainted by level bias: Activating the Auto button reduces the processed signal's level by the total amount of Limiter Gain and Clipper Drive (but not per-band gain) the plug-in added, presenting closer-to-equal levels for processed and unprocessed audio.

EQuivocate shares many of the same features as Elevate: triangular, linear-phase filters; a choice of Mel scale or custom distribution of frequency bands; Solo buttons for monitoring one or more bands at once; a Compare function; optional Auto gain compensation; I/O meters showing both RMS and peak levels; numeric readouts for peak-hold values; and I/O level trims (see Figure 2). As in Elevate, you can add or remove filters—26 is the upper limit—and draw a gain curve with your mouse. The exclusive Match EQ function lets you change the tone of your current mix to match that of another.

Except for EQ Match, Elevate does pretty much what EQuivocate does. In many cases, you won't need to use EQuivocate to adjust a mix's tone, as the gain sliders in Elevate's Limiter/EQ sub-module also do that. And although I liked EQuivocate's neutral sound, it wouldn't be my first choice for a mastering equalizer because of its lack of control over filter slopes and its omission of highpass and lowpass filters.

It's also important to note: Elevate doesn't provide separate threshold controls for each frequency band, so it might not be able to surgically limit peaks in a sonically annoying band without an increase in RMS level. Where Elevate excels is in jacking up parts of a mix's spectrum while putting a lid on the same bands' peaks. The classic Big Bottom effect is just one such application.

On a mastering session, Elevate did a great job making a thin, strident rock mix sound warm, punchy and louder. I first boosted the Adaptive Gain setting to the max, allowing independent increases in RMS levels in each band to adjust the mix's tone. I set up a custom filter bank that divided the bass range to my liking, and set Limiter Gain to a little over 1 dB (thereby lowering the threshold the same amount, which was the most I could get away with for a mix that already had a low crest factor). Next, I boosted bass and lower-midrange bands to various degrees in the Limiter/EQ sub-module (in effect, boosting RMS levels in those bands) and cut to different degrees between roughly 6 and 8 kHz. By increasing the

PRODUCT SUMMARY

COMPANY: Newfangled Audio

PRODUCT: Elevate Bundle

WEBSITE: newfangledaudio.com

PRICE: \$199

PROS: Transparent sound (with Elevate's Clipper bypassed). Elevate provides pinpoint control of RMS levels across the frequency spectrum. Auto function allows A/B comparisons largely without level bias.

CONS: No separate threshold controls per band. Elevate's Clipper sounds too distorted for use on full mixes. EQuivocate lacks slope controls, HPF and LPF. No Undo/Redo.

Limiter's Speed, I kept the increased RMS levels at lower frequencies from making the mix sound muddy, while adding punch.

Continuing work on the mix in the Transient sub-module, I boosted emphasis in the most effective bands for highlighting kick and snare hits (with the Adaptive Transient function also boosted to the max). Doing so initially increased sibilance in the female vocal. Soloing each suspect band, in turn, revealed the offending band to be 6,303 Hz, so I fully cut transient emphasis there to fix the problem. After getting the spectral balance to sound the way I wanted, I turned off the Auto function to hear the maximizer's effect. The mix sounded excellent—warmer, fuller, punchier and louder.

I didn't like how Elevate's Clipper sounded on full mixes; even with light processing, it sounded dirty

and less focused, filling in the "air pockets." However, I did like how it made a bass guitar track growl when mixing. Overall, it's Elevate's intrinsically transparent sound and fine-grained control that should make it a welcome addition to your mastering toolbox. ■

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

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APPLIED ACOUSTICS SYSTEMS OBJEQ DELAY

Unconventional Plug-in Produces Unique Effects



Objeq Delay's input signal excites one of four virtual objects before going on to two delays chained in series. More than a dozen parameters can be modulated using a variety of editable LFO waveforms.

At first glance, Objeq Delay appears to be a conventional stereo delay plug-in. But what makes it unusual is that it processes the dry signal by exciting a virtual acoustic resonator—a drumhead, string, plate or beam—before sending it on to delay lines. What's more, because the virtual resonators are not derived from convolution or fixed samples, you can change the characteristics of the resonators in subtle or dramatic ways to create a wide variety of timbres—including prominent resonances—in the delay signal.

The cross-platform Objeq Delay is available in AU, VST, RTAS and AAX Native plug-in formats. I reviewed Version 1.0.4 of the AU plug-in in Digital Performer 9.5, using an 8-core Mac Pro running OS X 10.9.5.

Objeq Delay's input signal is first (optionally) processed by Low Cut and High Cut filters, followed by one of four acoustic resonators you select from a dropdown menu. From there, the signal passes through a pre-delay, followed by a second delay fitted with a feedback loop. An included LFO can be routed to a single filter, resonator or delay parameter. Controls for adjusting output gain and wet/dry mix are included.

Time-based parameters can be synched to your host sequencer's tempo and set to any note value ranging from a 32nd to whole note. The LFO module can also be synched to dotted or triplet note values. You can quickly change the current note value by using an automatable control that multiplies the current note value by a factor of ½, ⅔, 1 (unchanged), ⅔ or 2 (twice the current value).

In the GUI's Object control section, you can alternately select a mod-

el of an elastic string, rectangular beam, rectangular plate or circular membrane (drumhead) to process the input signal and change its timbre. The object you select is virtually vibrated and caused to resonate by your input signal, producing a sound that's subsequently run through the plug-in's delay lines. You adjust the virtual object's primary resonant frequency from 20 to 4,000 Hz using the rotary Frequency control; this is akin to changing the size of the object in the real world.

Turning the Decay knob clockwise increases the decay time for resonant partials (harmonics) generated by the vibrating object, adding sustain. Rotating the Material control clockwise increases the decay time for higher partials, resulting in a more metallic sound. As you adjust the Formant control, you move the spot at which the input signal will excite the virtual object and cause it to vibrate, which in turn changes the relative amplitude of the different partials generated; a full counterclockwise

setting makes the input signal excite the edge of the object, whereas a full clockwise setting applies excitation at its center.

The resonators can be further conditioned to resonate only at bass, midrange or high frequencies by adjusting the Low Cut and High Cut filters that process the input signal beforehand. You can adjust the cutoff frequency for each of these filters from 20 to 20k Hz and independently change their filter slopes to be -6 dB/octave ("1 Pole" setting), -12 dB/octave (2 Poles) or -24 dB/octave (4 Poles).

After the input signal is processed by the cutoff filters and your chosen resonator, it goes on to two stereo delay lines, the parameters for which are adjusted in the plug-in's Delay control section. The First control adjusts delay time for the first delay line in the audio path, which is a simple delay with no feedback control or filters. The Echoes control adjusts the delay time for the second delay line. The second delay line also has controls for adjusting feedback (decay rate of re-circulated delay signal) and cutoff frequencies for High Cut and Low Cut filters that process its re-circulated echoes. You can adjust the delay time for each delay line independently—setting their values either manually (shown in seconds) or in sync to your DAW's tempo (displayed as note values)—or link them so that they both have the same value. Activating the Ping Pong button re-circulates echoes alternately in left and right channels.

In the GUI's LFO control section, you can select from a wide variety of LFO waveforms to modulate a parameter for a filter, resonator or delay. Alternatively, the selected LFO can modulate the amplitude of Objeq Delay's wet output signal. Unfortunately, only one param-

ter can be modulated at a time. Perhaps more important, modulating a parameter doesn't animate its control knob nor produce a dynamic readout for the changing parameter values; you'll need to rely solely on your ears to tell across what range of values the parameter is being swept.

From a dropdown menu in the LFO control section, select a Sine, Triangular, Square, Random or Random Ramp basic waveform; the latter two selections are re-

spective variations on the Square and Triangular waveforms that introduce erratic amplitude values. By adjusting the PW (pulse width) control, you can stretch or compress the selected basic waveform at different points in its cycle, creating asymmetric shapes; this greatly expands the variety of LFO waveforms you can use to modulate Objeq Delay's parameters.

The LFO's Phase control adjusts the starting point of each waveform (for example, at a peak or trough). Turn the Rate knob to adjust the LFO's rate in Hertz or, when the LFO's Sync button is activated, in note values synced to your DAW's tempo. Turn the Amount knob to adjust the amplitude of the modulation signal. A three-position switch labeled Offset changes the polarity of the LFO waveform and/or decreases the relative amplitude of its destination's value; that last bit is a mouthful, but rest assured the operation manual provides helpful illustrations that make the effects rendered by the switches easy to understand.

Like the output-gain and wet/dry balance controls, Objeq Delay's Mixer control section includes an Out/In switch that determines whether the input signal will go through the plug-in's effects (In position) or not (Out). When you place the switch in the Out position, any preceding echoes will still go to the plug-in's output—a great feature, because it lets you apply effects to isolated phrases when used while deactivating your DAW's effects bypass button. A hidden, fixed limiter (with no controls) is placed at Objeq Delay's output, affecting summed wet and dry signals at or above -1 dBFS level.

Objeq Delay can create conventional slapback echoes, echo trails, ADT effects and so on when you bypass the Object control section, but the magic begins when it's activated. I created fascinating ping-pong echo trails with shifting timbres by modulating the Drumhead resonator's Frequency control with a sine wave LFO. By modulating the Decay control and cutting highs and lows in the Filter module, I crafted a telephone-speaker timbre on echo trails with constantly changing sustain—a great effect for vocal tracks.

Using the String resonator alone (Delay and LFO bypassed), I tuned a kick drum to the key of the current song. And depending on how other controls in the Object control section were set, cranking the Decay con-

PRODUCT SUMMARY

COMPANY: Applied Acoustics Systems

PRODUCT: Objeq Delay

WEBSITE: applied-acoustics.com

PRICE: \$139

PROS: Produces unique delay effects. More than a dozen parameters—including the resonators'—can be modulated. Good documentation.

CONS: Modulating a parameter doesn't animate its control. No pan and output controls for left- and right-channels' wet signals.

trol on vocal tracks could be made to produce wild sounds ranging from whistling noises to a cross between R2D2 and ringing church bells; while not broadly useful, sweeping the Frequency knob with such setups can create cool dive-bomb effects. These are just some of the many unique delay effects Objeq Delay delivers.

Objeq Delay offers no independent pan and output-level controls for left and right delays in the plug-in's stereo configuration.

Regardless, I give Objeq Delay high marks for what I value most in a plug-in: its ability to cook up unique sounds my other tools can't produce. ■

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The neck-worn SCO61-N terminates in a gold-plated microdot connector, 3-pin Lemo, mini-jack, TA4F mini-XLR, and other custom adapters.

The SCO61-N microphone from DPA, part of the company's body-worn series, includes the 4061 omnidirectional capsule and is available with various terminations: DPA's standard gold-plated microdot connector, 3-pin Lemo, mini-jack, TA4F mini-XLR and other custom adapters for all major wireless brands. It is best deployed with a wireless beltpack transmitter, though the XLR adapter means wired is an option.

Available in white, brown and black, at lengths of 18.5 or 20.9 inches, it can easily blend in with clothing, costumes or bare skin. The necklace cable material is flexible soft rubber, with an easy-to-attach/detach chrome clasp on the back of the loop for quick on and off.

The 4061 is an omni, pressure-gradient, pre-polarized condenser capsule, with a frequency range of 20Hz to 20 kHz, ± 2 dB, with a 10dB boost at 12 kHz (it can be made to exhibit a flatter response by removing the acoustic cap over the capsule.). Nominal sensitivity is ± 3 dB at 1 kHz, with a S/N ratio (A-weighted) at a typical 68 dB. THD is less than 1 percent up to 123 dB SPL peak. The typical dynamic range is listed as 97 dB.

The SCO61-N is a straightforward piece of wearable technolo-

gy that clients find to be fun and easy to get accustomed to. The design is a direct response to the difficulties that often occur during film and stage productions where unwanted sound can cause problems to crop up later during in post-production. With the mic positioned at the base of the neck of the speaker/actor—and out of harm's way—the result is clean, clear sound and far less time spent in post.

Talent can easily mount and adjust the necklace by themselves for the best fit and comfort. As on standard lavalier-style mics, the connector wire all but disappears down the back of the wearer's neck, out of sight and into a transmitter that can be situated in a concealed pocket or belt loop. The rubber support adds a degree of shock absorption, so participants in activities such as contact sports, running, dancing and other high-energy situations all benefit. This feature is also useful to storytellers and narrators who might like an alternative to over-the-ear mics or lapel lavs. The 4061 capsule is away from direct wind blasts to avoid plosives and other mouth noises, but it's close enough to pick up transients and direct sound accurately.

We tested the SCO61-N in many typical situations with voice-over announcers and actors and had great success. But the main trial was a bit unorthodox, more musical and much more demanding: a percussion concerto with a full symphony orchestra. In this case, the SCO61-N helped us solve a simple yet tricky problem: how to properly mike a large percussion kit that literally surrounded the performer.

The work was the Avner Dorman's percussion concerto "Frozen in Time," with soloist Kiril Angelov, performing with the Arto-sphere Festival Orchestra conducted by Maestro Corrado Rovaris. The soloist must play from memory, constantly moving in a ballet-like dance throughout the work, changing sticks, mallets and point of view continuously.

For the recording, we used our standard method of spaced overhead DPA 4006TL omnis for the main orchestral pickup and spot mics; however, a fast stage changeover time and other logistics limited our ability to put up the six or seven microphones that would normally be needed to

TRY THIS

For unusual sounds of your own, try having your favorite wind player or other instrumentalist wear it. It may not be perfect, but you'll have a lot of fun hearing instruments just as the performers hear them, and it might just perk up your collection of Found Sounds the next time you need something unusual. For extreme levels, try it hard-wired without a transmitter/receiver. You'll be amazed at the dynamic range.

cover 23 percussion instruments, including a full set of concert marimbas, vibes, tuned bells, snare, tom-toms and kick drum.

We thought, "What if the performer actually were to wear the recording microphone, and we have it pick up the sound just as he hears it?" We only had time to test the idea at final dress rehearsal, then at the concert; soloist Angelov cheerfully took on the role of our beta tester. After hearing the isolated track, everyone was thrilled with the results.

Worn at the base of the neck, facing forward, the microphone seamlessly picked up everything as the performer heard it, allowing the recording to reveal the music up close and intimately. Transients were smooth and detailed, with no clipping or overloading.

Of course, with a typical dynamic range of 97 dB, the signal is only as good as the wireless system in use; we employed a Shure ULXD4D receiver with a ULX D1 Bodypack transmitter. With such a wide dynamic range from this array of percussion, we left plenty of gain and headroom at the transmitter and receiver, allowing a useable high-quality signal to blend with the rest of the mics on the orchestra, including our DPA 4006s as overheads. (See/hear online samples at mixonline.com.)

PRODUCT SUMMARY

COMPANY: DPA Microphones

PRODUCT: d:screet SCO61-N Necklace Mic

WEBSITE: dpamicrophones.com

PRICE: \$649.95

PROS: Easy setup and user-friendly, compatible with virtually all wireless systems.

CONS: Even the larger (53cm) size can be a bit tight for some male actors/performers when wearing dress-shirts with collars and ties.

In other testing and comparisons to several over-the-ear mics, lavs and standard SD and LD voiceover mics, the SCO61-N stood its ground, with a clear and crisp sound all its own, with only a touch of mid-low EQ needed here and there, depending on the speaker. Because it is an omnidirectional mic, there's little or no proximity effect, and we experienced none of the low-end rumble found in similar cardioid lavs and headset mics. In use for conferences and presentations, the SCO61-N was also easier to wear, EQ and amplify.

The DPA SCO61-N microphone is one of those great ideas that makes you wonder why someone didn't come up with it sooner: a

professional, high-quality omnidirectional miniature microphone that can be worn almost invisibly, or even as a fashion accessory, right at the base of the speaker's neck. Flexible enough even to record high-decibel percussion, it's a sound tech's dream. You won't always need a mic this unique, but when you do, it's a lifesaver! ■

Joe Hannigan is the owner of Weston Sound, where he provides audio and video location recording, mixing and editing.

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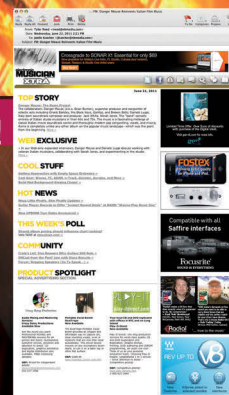
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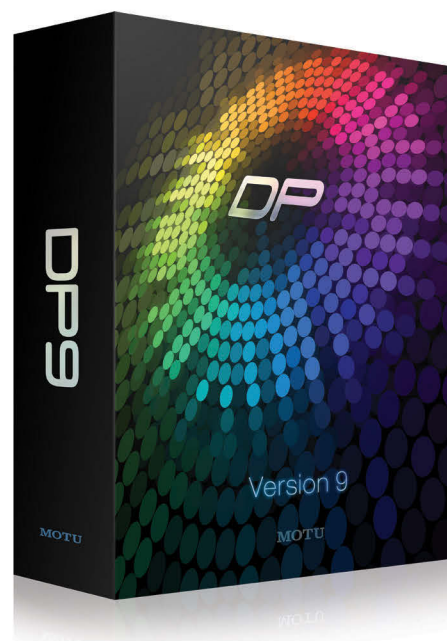
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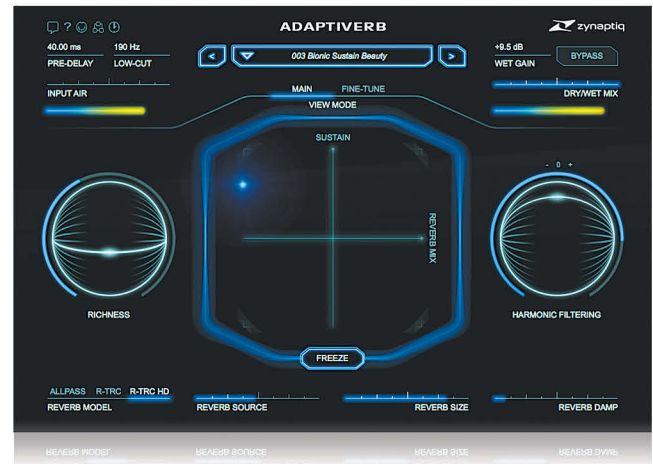


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Essential Gear to Close Out Your Year



By Kevin Becka

Audio-heads can be a tough crowd to buy for when you're looking for holiday gifts. You would most likely wonder, "What's good? Do they need it? Do I have to spend a fortune?" The answers are all simple.

In answer to the first question: If you're looking for quality, this page will get you started. Second question: Microphones, plug-ins, speakers, and other studio gear—you can't have too much stuff! Last question: The gear below is all under \$500, some well under the mark. So shop on and don't forget to look for special holiday pricing that may even beat the prices listed here.

The new iZotope Spire (\$349) is one of the most innovative products released in 2017. It is perfect for the musician, songwriter and budding engineer in your life. It's a prosumer recording interface that breaks the mold. You can go simple and layer up to eight tracks with the internal mic, or plug in a stereo pair of mics using the onboard preamps with phantom power from Grace Design. The slick-looking interface can be wall-plugged or runs on batteries for up to four hours. The magic comes when you sync Spire with your iPhone (6 and up) to capture audio in the Spire app. Of course, it wouldn't be an iZotope product without onboard DSP powering reverbs, delays, amp models and other processing. The app's mixer uses simple, movable track icons: Move the icon up, down, and side-to-side to make it louder or softer, or pan it left/right. From the app, you can share your work to social media or collaborate with other Spire users.

This year was a great one for those looking for affordable mics. I'm currently reviewing the sE Electronics sE8 microphone, which is stellar. I've had it all over sessions at Blackbird, and you can read about my experiences in next month's NAMM issue. The mic can be purchased separately for \$249, or \$499 for a stereo pair that comes with hardshell case, stereo bar, pop filters, and mic stand mounting clips. Another winning condenser I reviewed back in April is the Lauten LA-120. At \$349 a pair, it's an incredible buy. From my review: "I know of no other mic in this price range or size that gives you both high and lowpass filters, exchangeable capsules, stand mounts and pop filters." The LA-120 is versatile and sounds great for a range of applications.

If you're looking for affordable studio monitors, you need go no further than the Mackie CR Series or iLoud monitors from IK Multimedia. The iLouds (\$299.99) look too tiny to be serious, but they are no joke. Not only will they work as a handy reference up against higher-end speakers, but also they also offer a range of features that

make them both usable and fun to hear. They offer two 25W amps powering the 3-inch LF driver and ¾-inch silk-dome tweeter. There are three eminently usable EQ switches to tailor them to taste. For example, I found myself low-cutting them, which is counterintuitive for a monitor of this size. They also come with isolation bases for aiming and de-coupling them from a desk or are mic-stand mountable. Add Bluetooth streaming and versatile inputs, and we have a winner.

The Mackie CR series monitors break down the price barrier with the CR3 (3-inch woofer, \$89.99), CR4 (4-inch woofer, \$149.99) and CR4BT (4-inch w/Bluetooth, \$169.99). Common features include a ¾-inch fluid-cooled, silk-dome tweeter, handy front-mounted headphone jack, volume knob and 1/8-inch input, and TRS or RCA inputs. The rear-ported wooden cabinets ship with foam acoustical isolators, 1/8-inch to RCA cable, 1/8-inch to 1/8-inch cable, and a speaker-to-speaker cable. For under \$500, you could buy CR4s and still get the LA-120s listed above!

Plug-ins are always a good buy when gifting an audio geek. The Sonnox Oxford Dynamic EQ just released at AES in NY (\$135) brings a whole new attitude to an EQ plug-in. *Mix* reviewer Barry Rudolph says: "The Sonnox Oxford EQ begins as an excellent parametric equalizer and steps up with a powerful dynamic engine. Super recommended!" Next on the list is the Fabfilter Essentials Bundle featuring EQ, Reverb and Compressor for \$399. This company set the bar high for other manufacturers with its visually rich interfaces and innovative feature sets. At this price, you'll get three processors that I guarantee will be used in any DAW session.

For shaping the final product comes Newfangled Audio's Elevate mastering plug-in (distributed by Eventide at \$199). Reviewer Michael Cooper said: "After getting the spectral balance to sound the way I wanted, I turned off the Auto function to hear the maximizer's effect. The mix sounded excellent—warmer, fuller, punchier and louder." Read the rest of Michael's review in this month's issue. Another winner for the final polish is the Nugen Audio MasterCheck Pro at \$199. Reviewer Brandon Hickey summed it up by saying: "MasterCheck turned out to be the missing piece to my mastering workflow." Read the rest of his review in this issue as well.

This was such a great year for new gear that I could go on and on. I want to thank every reader for tuning into this column and *Mix*. We have great new reviews, features and events on tap for 2018 and are looking forward to providing excellent content for all our gear heads. Happy New Year everyone! ■

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LS50W features audiophile-grade amplification and sound processing, as well as extensive connectivity.

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Plus, with a wide array of connection options available and a dedicated app offering three levels of customisable EQ control settings, the LS50W is now a complete state-of-the-art audio system.



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Introducing the

828ES

Proven performance. Superb analog sound.

- ESS Sabre32 Ultra DAC Technology™ for 123 dB dynamic range on balanced, DC-coupled outs
- Ultra-low latency (1.6 ms at 96 kHz/32 buffer)
- Thunderbolt™ and USB for Mac, Windows and iOS
- 60 channels of simultaneous I/O (28 x 32)
- AVB/TSN networking for system expansion
- A/B monitor select with mute and mono summing
- Talkback control with built-in mic

- Two independent headphones
- Powerful DSP
- 48-channel mixing with effects
- MIDI and time code I/O
- Pre-converter sends for mic inputs
- Wi-Fi control

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