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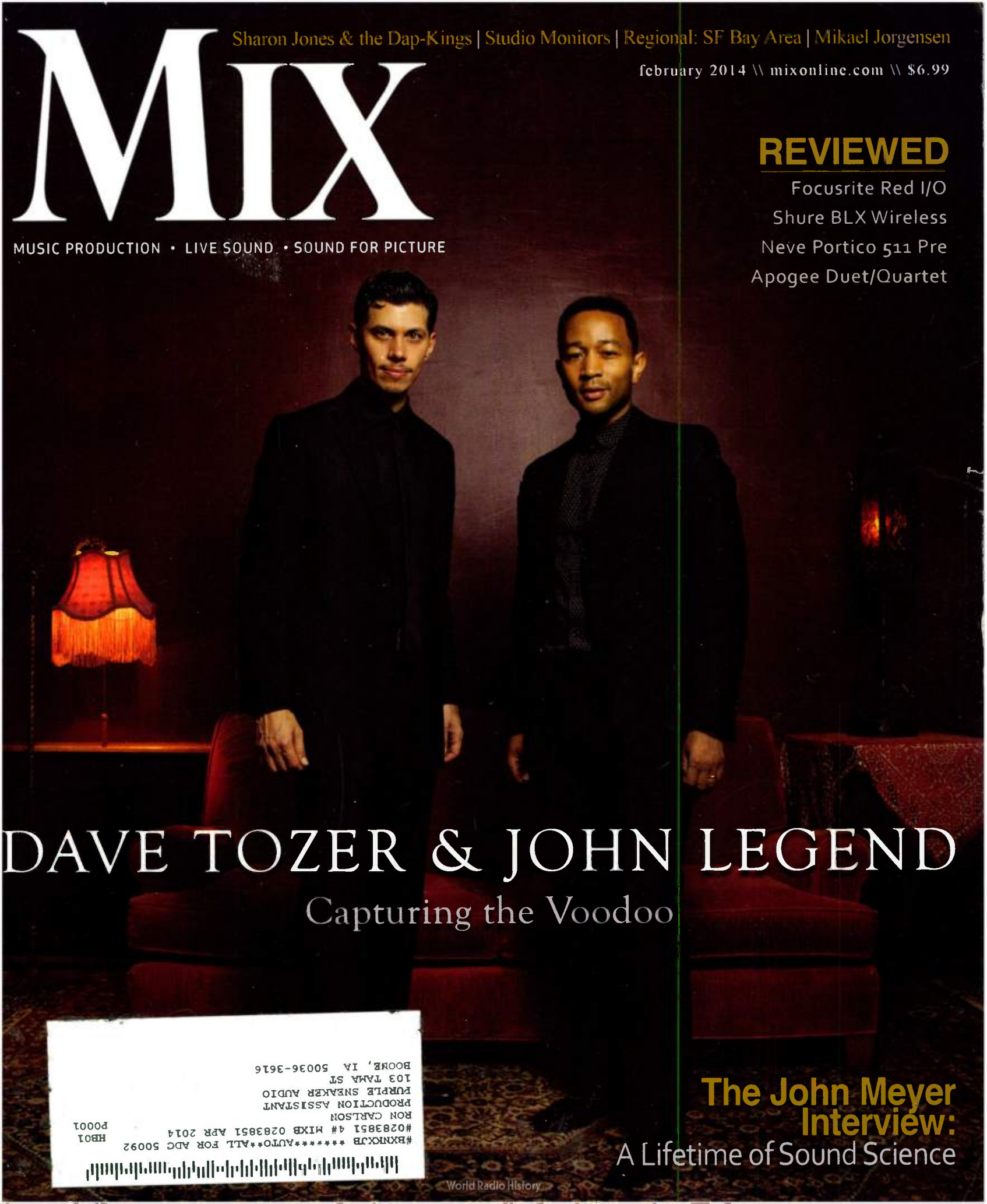

DAVE TOZER & JOHN LEGEND

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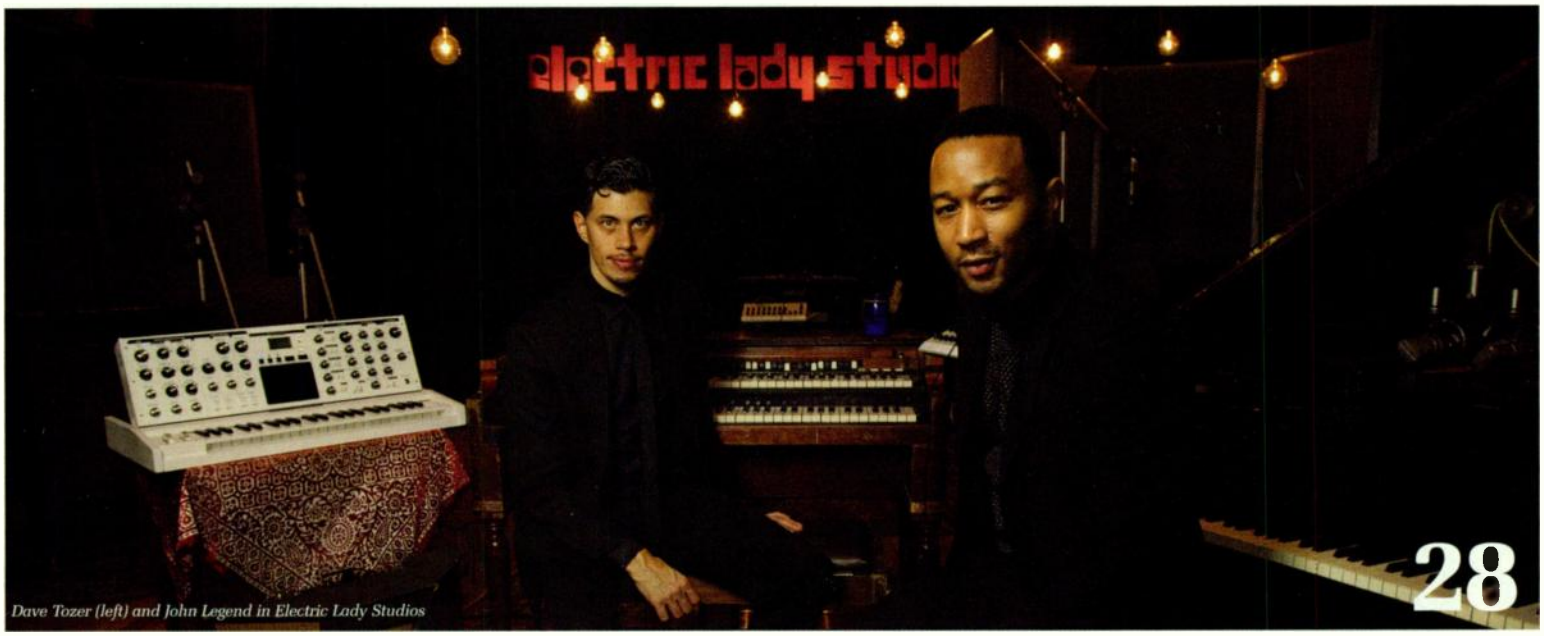
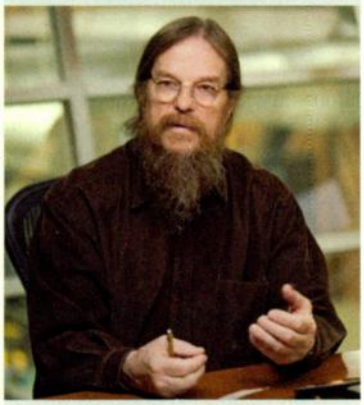


Dave Tozer (left) and John Legend in Electric Lady Studios

FEATURES



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DEPARTMENTS

TECH

On the Cover: Producer Dave Tozer and artist John Legend met in Philadelphia in the '90s and have built their relationship through this year's Grammy-nominated *Love In The Future*. Photographed at Electric Lady Studios. **Photo:** Michael Vecchio.

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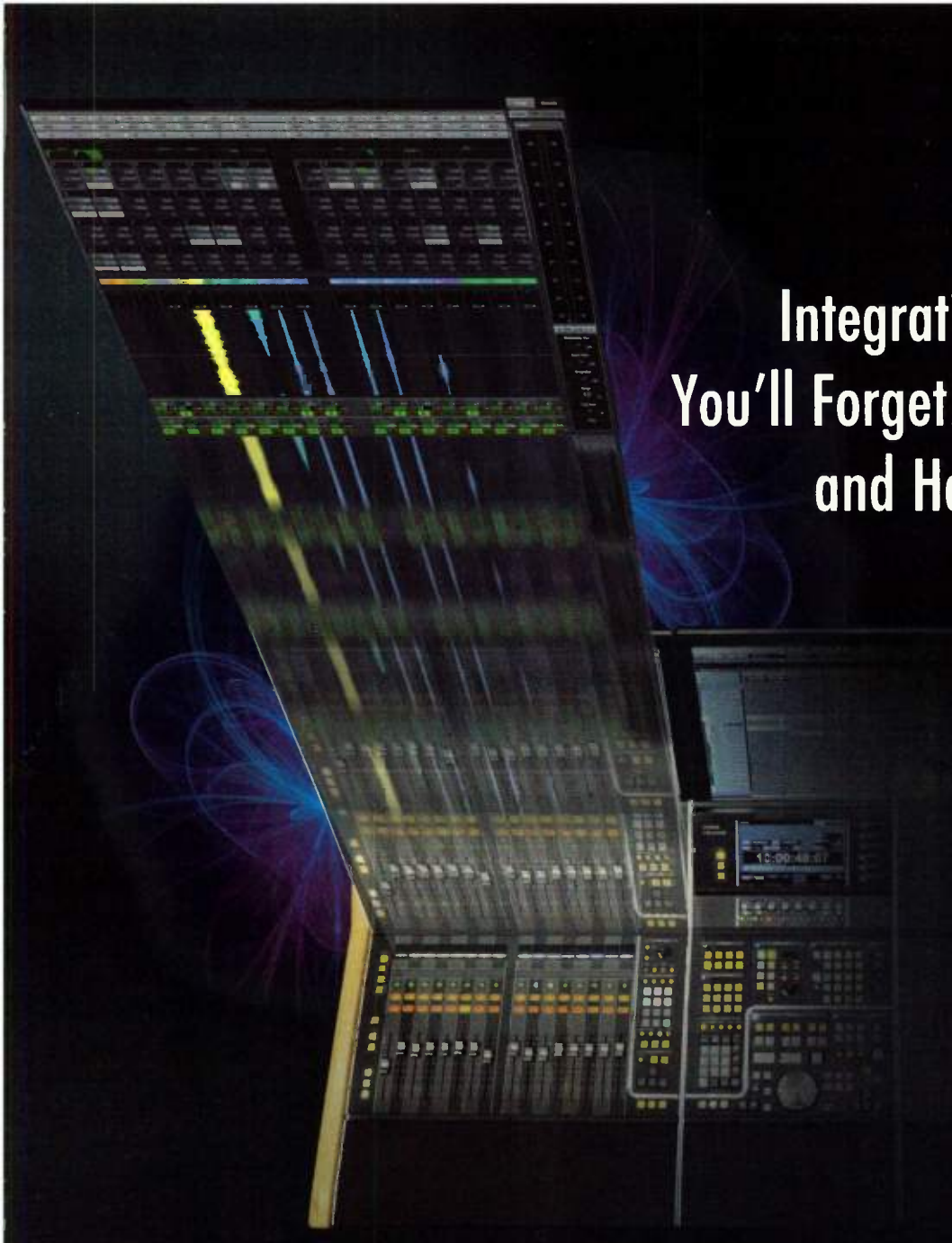

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SENIOR EDITOR Blair Jackson blair@blairjackson.com
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MANAGING EDITOR Lori Kennedy lkennedy@nbmedia.com
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SOUND REINFORCEMENT EDITOR Steve La Cerra
CONSULTING EDITOR Paul D. Lehrman lehrman@pan.com
CONTRIBUTING EDITORS Barbara Schultz Michael Cooper Eddie Ciletti Gary Eskow Barry Rudolph Matt Hurwitz

ADVERTISING
SENIOR ACCOUNT EXECUTIVE, WESTERN REGION
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EUROPE/EASTERN SALES DIRECTOR
Paul Leifer pleifer@media-sales.net
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Doug Ausejo dausejo@nbmedia.com

ART & PRODUCTION
ART DIRECTOR Todd Berkowitz tberkowitz@nbmedia.com
PHOTOGRAPHY Steve Jennings
PRODUCTION MANAGER Heather Tatrow htatrow@nbmedia.com

MARKETING
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From the Editor

SCIENCE AND EMOTION

BY TOM KENNY

The best thing about being editor of *Mix* is that I get to meet such a wide variety of creative, smart, interesting, technical, curious, articulate, well-rounded, passionate and simply fascinating people—from all types of backgrounds, from all walks of life. There are mad scientists who know more about electricity, physics or acoustics than anyone I will likely ever meet, and there are high school dropouts who have a creative bent for mixing chart-topping music. They all have a story.

I got my degree in journalism and fell into pro audio. I didn't live the passion that so fuels our industry. I didn't tinker with my radio when I was 6, didn't pick up a guitar at 13, didn't memorize liner notes or follow producers, didn't work in a hi-fi store, didn't make beats. But I've always loved music, and I can recognize passion when I see it. The recording industry is overflowing with passion. What makes that passion unique, at least in my observations, is that it is rooted in a blend of the scientific and the emotional, the left-brain/right-brain, the creative and the technical.

Soon after being hired by *Mix*, I came in regular contact with Stephen St. Croix, a tremendous columnist who became a friend over the years before his passing in 2006. He remains one of the truly brilliant men I've met in my life, with a mind that could grasp and expand on concepts and designs, build the Marshall Time Modulator, become an expert in forensic audio, play synth with Stevie Wonder, produce Swedish rock bands, find peace when petting a cat, and mix the first VHS remastered version of *The Wizard of Oz*. Or George Massenburg, inventor of the parametric EQ, studio owner, manufacturer and engineer for Earth, Wind & Fire, Little Feat and countless others. Or the late Bruce Jackson, with a legacy at Apogee and Lake, and with Barbra Streisand. Les Paul, Bill Putnam, Tom Dowd...there are so many more. These are exceptional minds in any field, a rare confluence in the *corpus callosum*, where left-brain and right-brain wrestle for dominance.

But I've found in my 25 years here at *Mix* that it's that way throughout professional audio. Admittedly, it's not always on the same level as those just mentioned, but the common thread is a synergy between technical and creative aptitude. Sometimes it leans to the left, and you find some individual building a boutique preamp in a garage; sometimes it leans right and you have a 20-year-old producer with a magic touch. It makes sense that these types of minds are drawn to music.

I've been thinking a lot about the technical and creative this past month because of two interviews in this issue. The first was with The Scientist, John Meyer of Meyer Sound. John has a genius mind, a scientific mind. He solves problems from an engineer's point of view. "The danger about working with science and intuition," he says, "is that scientists don't believe in intuition." He experiments. When he started his company in 1979, the first couple of years were spent building a measurement tool so that he would know how to measure his achievements in loudspeaker system design. He also loves the symphony, theater, all types of performance, and he started out working with the Grateful Dead, joan Baez, Steve Miller Band, Metallica, Herbie Hancock and many other artists. He knows music.

The second interview was with this month's cover boy, Dave Tozer, a musician/songwriter/arranger/producer/engineer who lives the spirit, vibe, scene, creation, energy, voodoo of music. His story is one long stream of musical immersion, with influences form all genres and a penchant for rock and hip-hop. He lives a New York music and recording life, and it's all about creation. He also interned at a Philadelphia studio when he was 19, is fluent in old-school recording techniques and a master of Logic, and he recorded and mixed John Legend's recent Grammy-nominated *Love In The Future*. So he knows tech. He knows audio.

Meyer's and Tozer's stories, on any and all levels, are repeated over and over in all aspects of the professional recording industry. In all regions of the country. In schools, in manufacturing facilities, and in sales offices. Onstage, in the studio or broadcast to the world. It's the left and right brain bringing out the best of the creative and the technical. It sure keeps my life interesting, as I'm sure it does all of yours.

By Tom Kenny
Editor

PS: This month's cover represents something of a departure from the typical *Mix* style, or rather, a look back. In an early phone call with Dave Tozer, he expressed his appreciation for our March 2010 Lenny Kravitz cover. He liked the artistic sense and asked if he and the photographer, Michael Vecchio, could play with the image and select their own fonts.

FILM SOUND SPECIAL

In honor of the major annual film sound awards that are bestowed in February—the 61st Motion Picture Sound Editors (MPSE) Awards on February 16 and 50th annual Cinema Audio Society Awards on February 22—followed by the Academy Awards on March 2, *Mix* recognizes the career achievements of the top individual nominees.

OSCAR SOUND

Hollywood broke box office records again in 2013, boosted no doubt by the receipts from 3-D, IMAX and a slew of action-adventure and comic book-driven franchises. While Academy voters tend to steer toward these types of films in the two categories devoted to sound—Best Sound Mixing and Best Sound Editing—the nice thing about our little part of the industry is that...you never know. Sometimes there are surprises. Please visit mixonline.com to view our complete Oscar Sound digital edition.

2014 Oscar Nominees
For Sound
Sound Editing

All Is Lost—Steve Boeddeker and Richard Hymns
Captain Phillips—Oliver Tarney
Gravity—Glenn Freemantle
The Hobbit: The Desolation of Smaug—Brent Burge
Lone Survivor—Wylie Stateman

Sound Mixing

Captain Phillips—Chris Burdon, Mark Taylor, Mike Prestwood Smith and Chris Munro
Gravity—Skip Lievsay, Niv Adiri, Christopher Benstead and Chris Munro
The Hobbit: The Desolation of Smaug—Christopher Boyes, Michael Hedges, Michael Semanick and Tony Johnson
Inside Llewyn Davis—Skip Lievsay, Greg Orloffand Peter F. Kurland
Lone Survivor—Andy Koyama, Beau Borders and David Brownlow

Photo: Holger Hoetzel

ANDY NELSON, RE-RECORDING MIXER

CAS CAREER ACHIEVEMENT AWARD

Andy Nelson, who holds two Oscars and 18 nominations, to go along with his 18 nominations for CAS Awards, will be recognized this year with a Career Achievement Award from the Cinema Audio Society at the 50th annual CAS Awards ceremony on February 22 at the Millennium-Biltmore Hotel in Los Angeles. In a career that now spans 35 years, with no signs of slowing down, Nelson has been the re-recording mixer on more than 140 feature films, including *Lincoln*, *Rise of the Guardians*, *War Horse*, *Super 8*, *Avatar*, *Star Trek*, *Blood Diamond*, *War of the Worlds*, *The Last Samurai*, *Seabiscuit*, *Catch Me If You Can*, *Shrek*, *The Insider*, *The Thin Red Line*, *The X-Files*, *Evita*, *Schindler's List* and *Gorillas in the Mist*. In 2013 he won the CAS Award for Outstanding Achievement in Sound Mixing for a Feature Film for *Les Misérables*, to go with his 1999 statue for *Saving Private Ryan*. He also won Best Sound Oscars for those two films.

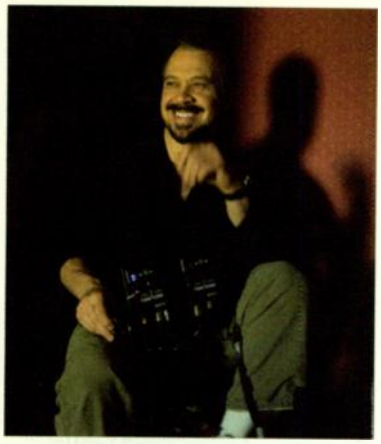
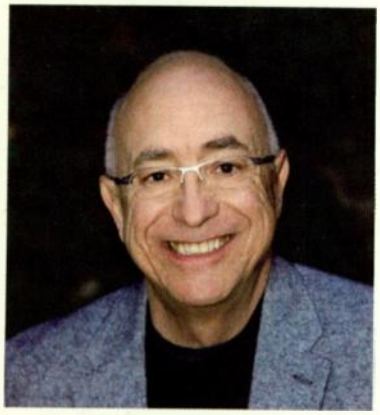


Photo: Takashi Seida

EDWARD ZWICK, PRODUCER

CAS FILMMAKER AWARD

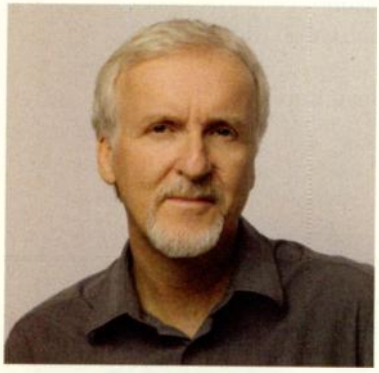
Academy Award–winning producer Edward Zwick will receive the Cinema Audio Society Filmmaker Award at the 50th Annual CAS Awards on February 22, 2014. Zwick will be the ninth CAS Filmmaker Honoree. Zwick most recently directed and produced *Pawn Sacrifice*, starring Tobey Maguire, Liev Schreiber, Michael Stuhlbarg and Peter Sarsgaard. As a producer of the 1999 Best Picture, *Shakespeare in Love*, Zwick received an Academy Award. He has also been honored with three Emmy Awards, two Humanitas Prizes, three Writer's Guild of America Awards, two Peabody Awards, a Director's Guild of America Award, and the Franklin J. Schaffner Alumni Award from the American Film Institute.



RANDY THOM, SOUND EDITOR

MPSE CAREER ACHIEVEMENT AWARD

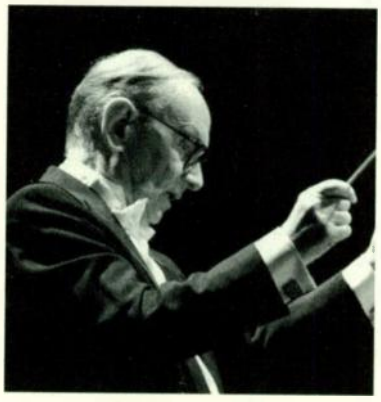
The Motion Picture Sound Editors (MPSE) will honor Randy Thom, Director of Sound Design at Skywalker Sound, with its prestigious MPSE Career Achievement Award. He will receive the award at the 61st MPSE Golden Reel Awards ceremony on February 16, 2014, at the Westin Bonaventure Hotel and Suites in Los Angeles. Thom is a two-time Academy Award-winner, for *The Right Stuff* and *The Incredibles*, and a 14-time Oscar nominee. He has also received nominations for an Emmy Award and a Grammy Award, and has contributed to more than 100 films as a sound designer and re-recording mixer.



JAMES CAMERON

MPSE FILMMAKER AWARD

Producer/director/writer/editor James Cameron (*The Terminator, Terminator 2: Judgment Day, Aliens, The Abyss, True Lies, Titanic, Avatar*) will receive the Motion Picture Sound Editors Filmmaker Award at the 61st MPSE Golden Reel Awards ceremony, on February 16 in Los Angeles. The MPSE Filmmaker Award is bestowed upon extraordinary filmmakers who embody the spirit, vigor and innovation of storytelling. *Titanic* won the 1998 Academy Award for Best Picture and garnered Cameron the Academy Award for Best Director and Film Editing. After *Titanic*, Cameron worked on his science-fiction epic *Avatar*, which took almost 10 years to make, and for which he was again nominated for an Oscar as Best Director and Film Editor. Cameron has been nominated for six Academy Awards overall and won three for *Titanic*.



COMPOSER ENNIO MORRICONE RECEIVES THE RECORDING ACADEMY'S TRUSTEES AWARD

Composer Ennio Morricone received the Recording Academy's Trustees Award in a special invitation-only ceremony held on January 25, 2014. The Trustees Award recognizes notable contributions in recordings outside of performance. The European Film Academy named Morricone the European Cinema Composer 2013.

In a career spanning seven decades, Morricone has composed scores for more than 450 films, including *A Fistful of Dollars*; *For a Few Dollars More*; *The Good, The Bad, and the Ugly*; *Once Upon a Time in the West*; *A Fistful of Dynamite*; *The Battle of Algiers*; *Sacco and Vanzetti*; *Cinema Paradiso*; *1900, Malena*; *The Untouchables*; *Once Upon A Time in America*; *The Mission*; *U-Turn*; *The Unknown Woman*; and *The Best Offer*.

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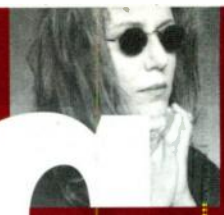

Photo: Jacob Blickenstaff

SHARON JONES AND THE DAP-KINGS

Rhythm & Soul Greats 'Give the People What They Want'

By Barbara Schultz

In an interview for *Electronic Musician* magazine last summer, Questlove of The Roots mentioned that he'd learned some eye-opening drum-miking techniques from Gabe Roth, the bassist, producer, engineer and label owner for the Dap-Kings. This sure makes sense when Roth describes the process of recording Sharon Jones and the Dap-Kings' gorgeous new soul release *Give the People What They Want*. Roth is at least as likely to move the mic or move instruments as he is to try different microphones:

"Most of the session was with one mic [on drums]," Roth says. "I usually use an RCA 77, or it might have been something else we got from Audio-Technica, but we spent a long time trying to get the kit to sound really right: moving the mic around, and—Homer [Steinweiss, drummer] will laugh about it—even moving the drums around. I'll say, 'Hey, Homer, can you play the floor tom if I put it on the other side?' I'm lucky to have that kind of a relationship with him.

"But this is the kind of thing we do in the studio, and it's how we're always 'mixing' the drums," Roth continues. "Do you have too much crash cymbal? Just move it away from the microphone."

Roth records the band in Daptone Studios, his label's tracking space within the duplex that also houses Daptone Records' offices. The studio includes a live room and adjacent iso booth, and a control room fitted with a Trident 65 console. The 216-square-foot live room is perhaps a little smaller than what would be ideal for tracking a large ensemble, but Roth

Photo: Wes Bender

and his bandmates have a great comfort level in the studio.

"This is our sixth album together. Most of the band has been together for 10 years, and Sharon and I have been playing together for 16 or 17 years. So, we have a certain rhythm going into it. We know how to write together. We have a process," Roth says.

That process involves a lot of the experimentation he mentions concerning mic and drum placement. Horns get the same treatment: one microphone (either the RCA 77, or a Reslo or Shure 315 ribbon), and many setups. "We spent time blending the horns, putting them in different parts of the room, facing different directions, moving the microphone. We're always working through the arrangements and realizing how the horns have to blend on each part of the song. Maybe the tenor saxophone has to take a step back on the verse when he's on the third; and when you're playing unisons on the chorus, take a step forward."

The Dap-Kings track to an Ampex 440 8-track tape machine: another ingredient in a recipe that's equal parts creative experimentation and deliberate limitation.

"I think there's a misconception that Daptone are super into analog," Roth says. "We do use analog stuff, but we're not dogmatic about it. It's a practical thing. I think that by having a finite number of tracks and not having an Undo button, you push everybody to be better at their job."

A lot of the instruments are tracked live, but horns and vocals are overdubbed. Roth used a few different vocal mics on Jones as the session progressed: a Røde Classic, a Studio Projects CS1, and a Bock 241 that he says worked especially well with Jones' voice. He says his process of choosing microphones always involves blind shoot-outs, to avoid any false preference for spendy or vintage models over pure sonics.

Also in the vocal chain were one of Dave Amels' Realios 500 Series compressors, and an AnaMod compressor that Roth also used during the mix in his personal studio in Riverside, Calif.

Roth's mix room is equipped with another Ampex machine and Trident 65 console, and four pairs of monitors for comparative listening: Westlake near-fields, JBLs, ADAM SA3As, and UREIs. He spent a fair amount of time building different reverb chains and applying them to specific instruments, or to songs overall.

"I used combinations of four or five different spring reverbs," Roth says. "I had a Zerotronics [Coolsprings], Orban 111b, an [AKG] BX20, and I have another tape machine, an Otari, that I use for delays and predelays. I would make different predelays going to different reverbs and different amounts of feedback.

"Sometimes I would make these complicated reverb chains and compress them a lot with a vocal," he continues. "I would bus the vocals into a sub-bus and with the reverbs, so when the vocals hit, it would push the reverbs out of the way and I would have a nice slow release time. So after the vocal comes out, the reverb would swell up behind it. It's a nice effect because you can have wild, psychedelic reverbs, but things stay intelligible and kind of punchy."

The final album is a fantastic old-school soul and funk record with cool, spacey touches, carefully applied.

"For me, this work is a constant balance between getting inside the details of acoustics, engineering and music theory, and the need to step far enough back so you don't let any of those things affect your ability to feel whether something's right or not," Roth says. "Like, maybe we stayed up all night writing that horn arrangement and we used the fanciest mic ever, and we did the perfect splice, but if I step back it sounds better when the guys just hit one note." ■

A.J. CROCE TELLS 'TWELVE TALES'

Artist/songwriter A.J. Croce's latest comprises a dozen songs, made in pairs with six different producers: Allen Toussaint, Mitchell Froom, Kevin Killen, Tony Berg, Greg Cohen, and the late Cowboy Jack Clement in one of his last sessions.

The Toussaint-produced tracks, "Rollin' On" and "Tarnished and Shining," were tracked by engineer Lu Rojas in Toussaint's personal studio in New Orleans. "He has a little compound of three homes, connected by the backyard," Rojas says. "The middle one is the 'music home.'"

Photo: Shelby Duncan

Toussaint's studio, which had to be refurbished after Katrina, contains the great artist/producer/composer's 7-foot Steinway grand, as well as a Korg Oasis keyboard where he writes music and charts, and his studio gear: a Pro Tools HD rig with C24 controller, and a collection of microphones, including Earthworks' piano-miking system and many from Audix, with which Toussaint has an endorsement deal.

"He doesn't have much in terms of preamps or plug-ins, so I bring some of my outboard gear with me and a few extra mics," says Rojas, who captured most of the instruments live (horns and vocals were done on a separate session).

Key to the sound of these tracks is that Steinway, where Rojas supplemented the mounted Earthworks system with his own Mike Joly Hulk 990 mics; those all went through Rojas' Lindell mic pre's. "I placed the Mike Jolys outside the center of the piano," he says. "That gave us a little more ambience.

"The great thing about working with Allen is, he wants the artist to be happy. He kept checking to be sure A.J. liked the way everything was progressing. He has definite ideas, but when another musician comes up with something he finds interesting, he tells them, 'No, go ahead and do that; forget what I told you to do.' He's a very gracious person."—*Barbara Schultz*

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UNIVERSAL AUDIO

PEGGY SUE, 'CHOIR OF ECHOES'

Photo: Mike Massaro

British alt-rock group Peggy Sue wrote and demoed the songs for their latest album, *Choir of Echoes*, in their North London practice space before going into the famed Rockfield Studios in Wales to record with engineer/producer Jimmy Robertson.

"We used the room called the Quadrangle," Robertson says. "It's a long stone farm building that houses the studio, and it's partitioned in four parts: At the back is a drum room, about 6-by-6 square meters. Next to that is a large, carpeted live room about twice that length; in here we had both guitars, and various guitar amps. The bass amp was in a separate booth to the side, but Ben [Rubinstein] played in the main room alongside [multi-instrumentalists/singers] Katy [Young] and Rosa [Slade]."

The Quadrangle's control room is equipped with an MCI 500 console, as well as racks of outboard Neve 1061s and Rosser pre's. "I don't think you'll come across the Rossers outside of Rockfield," Robertson says. "I think they were a private commission built by a Welsh engineer based in Swansea. It was for something like the Ministry of Defense, but either way they weren't intended for Freddie Mercury to be singing 'Bohemian Rhapsody' down, but that's where they ended up. They're great pre's with a very sweet sounding EQ on each channel.

"There's a good selection of mics at Rockfield, so we were spoiled for choice with the vocal chain. We AB'd three or four microphones and selected two. The most commonly used was a Neumann U 67, Neve pre and Urei 1176 compression. We had a second chain with a C12, Rosser mic pre and a second Urei. The vocals were recorded in the large live room at the far end facing into the room."—*Barbara Schultz*

COOL SPIN

PAUL RODGERS: THE ROYAL SESSIONS

429/PIE RECORDS

What an unexpected surprise this is. English rock and blues belter Paul Rodgers (Free, Bad Company, The Firm, etc.) revisits his roots on The Royal Sessions, named for the legendary Memphis recording studio (formerly helmed by the late, great producer Willie Mitchell) that has churned out a zillion soul, R&B and rock nuggets since it opened in the mid-'50s. Backed by the cream of the studio's current crop of top groovemeisters, including guitarist Michael Toles, bassist Leroy "Flick" Hodges Jr., drummers James Robertson and Steve Potts, keyboardists Rev. Charles Hodges, Lester Snell and Archie Turner, and the Royal Horns and the Royal Singers, Rodgers lays into 10 classic tunes, offering his unique spin on well-known numbers such as "I Thank You" (Sam and Dave), "I Can't Stand the Rain" (Ann Peebles), "I've Been Loving You Too Long" (Otis Redding) and "Born Under a Bad Sign" (Albert King), and a handful of less obvious choices. Rodgers was clearly invigorated by the experience and sings his tail off. A nice late-career comeback.—*Blair Jackson*

Producer: Petty Margouleff. Engineer/mixer: William Wittman. Recorded at Royal Studios (Memphis). Mixed at Pie Studios (Glen Cove, NY). Mastered by Ryan Smith/Sterling Sound (NYC).

SPRINGSTEEN'S 'HIGH HOPES'

The powerful title track from Bruce Springsteen's new album was recorded with engineer Nick DiDia, mainly at Studios 301 in Sydney, Australia (studios301.com). Producer Ron Aniello first asked DiDia to record some of Tom Morello's guitar parts for songs that had already been started. "Once we did that," DiDia says, "the idea came up to possibly record the entire band.

"I tracked Tom's overdubs at 301 in Byron Bay, where I live," DiDia continues. "He brought a Marshall Head with him and his pedal board, and we used my old Marshall cabinet. I usually use a 57 and a KM 86 on the cab, and most likely the vocal mic as a guitar room mic. The vocal mic was a Soundelux U95—I had gotten it for a Pearl Jam session years ago to try out and ended up buying it."

But when it came to tracking the entire E Street Band, they needed a lot more real estate. "In Sydney, there is a very large orchestral room that also has a few large isolation rooms, so Max [Weinberg] was in one room and Bruce was in another, and the rest of the band was in the main room. In addition, we were able to use some of the isolation booths in the adjacent studio for guitar and bass cabinets. The initial tracking was a nine-piece band live; then we overdubbed the horns and additional background vocals."

DiDia recorded the session to Pro Tools through Apogee converters, and the Boss played acoustic and sang live with the band. "The acoustic would have been [captured via a Neumann] KM 86 through an 1176, and the vocal was an SM7 through a Pultec and an LA-2A. Acoustic guitars just sound right to me through that combo, especially if it's an acoustic in a rock track," DiDia says. "The SM7 has a real presence to it, and the vocalist can get right on it. It also has good rejection so it tends to keep the guitar out of the vocal mic more than a large-diaphragm tube mic."—*Barbara Schultz*

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Classic Tracks

By Blair Jackson

"FIRST WE TAKE MANHATTAN"

Jennifer Warnes

With 20/ 20 hindsight, it makes perfect sense that Jennifer Warnes' exquisite 1986 album, *Famous Blue Raincoat: The Songs of Leonard Cohen*, became a critical and commercial success. After all, Cohen is now widely regarded as one of the great songwriters and poets of the modern era, and the always-underrated Warnes was enjoying a hot streak that included singing two Best Original Song Oscar winners—"It Goes Like It Goes," from *Norma Rae*, and her inescapable chart-topping duet with Joe Cocker on "Up Where We Belong," from *An Officer and a Gentleman*—and another nominee, "One More Hour," from *Ragtime*.

But in early 1986, when work began on *Famous Blue Raincoat* at Hollywood Sound, no major labels wanted to touch it. Cohen had almost no profile in the U.S. at the time—he was, and still is, most popular in Europe, though the U.S. has finally caught up in recent years. And a few high-profile songs notwithstanding, Warnes had not exactly been burning up the charts with her solo albums.

The idea for the album—which became known, colloquially, as "Jenny Sings Lenny"—had been germinating for several years. Warnes went way back with Cohen—she was a backup singer on his 1972 tour, remained close friends with him, and then worked on Cohen's 1979 album, *Recent Songs*, his world tour of that year (which played Europe, but not North America) and on his *Various Positions* album in 1984. The *Recent Songs* album and tour also brought the other main force behind *Famous Blue Raincoat* into Warnes' orbit: bassist Roscoe Beck and the Austin-based jazz/fusion group he was part of, Passenger. The band backed up Cohen for a number of tracks on the album, and then formed the nucleus of Cohen's backing group on the tour (captured well on the *Field Commander Cohen* live album, released in 2001).

Warnes and Beck became close over the course of the tour, and it was on long bus rides between cities and in hotels all over that the seeds were planted to someday make an album of Cohen's songs, couching the songwriter's lyrics in more challenging and imaginative settings. "I thought the lyrics deserved elegance," she says today. Over time, those discussions evolved into something more concrete, but the proposed album still lacked a home.

"MCA said, 'Who would buy that?' and the truth is I didn't know," Warnes says with a laugh. "But then this small indie label [Cypress Records] took it and, even though we had a very, very small budget to work with, we got it rolling. It was the first record that Roscoe or I had ever produced, separately or together, and we just said, 'We can do this... can't we?' And we did, with the help of some of the finer people in the city; we managed to pull it off. Roscoe and I felt it doesn't matter if you haven't done it before if your vision is clear and you're committed."

It helped that both Beck and Warnes were very well-connected in L.A. Warnes had been recording there since the late '60s and worked with many of the city's A-list session players, and the more recent L.A. transplant Beck had also established himself as a musical force around town; in fact, he regularly played at local nightspots with a group of session heavies that included guitarist Robben Ford, drummer Vinnie Colaiuta and keyboardist Russell Ferrante—all of whom turn up on *Famous Blue Raincoat*, along with a couple of Beck's former associates from Passenger, pianist/arranger Bill Ginn and saxophonist Paul Ostermayer. (Other local luminaries who helped out included synth titan Gary Chang, keyboardist/arranger Van Dyke Parks, percussionist Lenny Castro, bassist Jorge Calderón, guitarists Fred Tackett, David Lindley and Michael Landau, and a host of backup singers associated with Ry Cooder—Willie Greene, Arnold McCuller, Bobby King and Terry Evans. Signing on to engineer was Bill Youdelman, who was well-known for his expert live recording work (as well as his studio chops), having worked on such projects as Sting's *Bring on the Night*, Warren Zevon's *Stand in the Fire* and Weather Report's exceptional *8:30*.

"Initially, I made a deal with Hollywood Sound to record there for six weeks," Beck says, "but I think it was the end of the first day of recording

that Billy Youdelman announced to me that he refused to work there—that the microphones were bad and he didn't like anything about the room. And I said, 'Well, I've already made a deal for six weeks.' And he said, 'Get out of it. I'm going to take you over to The Complex.' We ended up staying at Hollywood Sound for three days and worked on a few songs there. 'Bird on a Wire' and 'Coming Back to You' were both tracked at Hollywood Sound with live vocals. We had already rented a microphone [an AKG C12 favored by Youdelman for Warnes' vocal] from The Complex for the few days we were at Hollywood Sound. I had to wiggle out of the deal and then go talk turkey with [Complex owner] George Massenburg."

From the outset, Beck and Warnes knew they wanted to record their album of Cohen songs on one of the new digital multitracks that were quickly gaining a foothold in L.A. studios, "but our budget was a real problem," Beck says. "To do what we were doing in those days, which was renting a Sony [3324] 24-track digital machine, you had to spend $600 a day for the machine alone. Fortunately, the label we ended up going with [Cypress] had already purchased the new Sony machine. They wanted to sell the record as an all-digital record, as CDs were in their infancy and they saw that as a great selling point. We took the Sony into The Complex and sometimes rented a second one, too."

The Complex got its start in the late '70s, when engineer and audio inventor George Massenburg built a three-room recording facility for Earth Wind & Fire. He equipped the control rooms with custom consoles that were, naturally, outfitted with his soon-to-be-legendary EQs, preamps, advanced automation systems and other peerless gear. "The sound in there was just phenomenal," Youdelman enthuses. "Part of it was the acoustics, but most of it was George's equipment—to this day, nothing I know of could equal the electrical performance of the consoles at The Complex. A lot of the reason the record sounds so good and so clean is through George's hard work on that equipment."

Warnes, Beck and Youdelman were determined to record the album as "live" as possible in the studio. "There was something about the feeling of 'live'—as Ry Cooder called it, 'the goddamn joy!'— that really took me by the throat," Warnes says. "I knew that record had to have the feeling that there was a place where it was recorded and there were real people playing and we were capturing some magic in the studio."

Most of the basics for the album were tracked live (with Warnes even singing a couple of keeper vocals with the group), but that was not the case with this month's Classic Track, "First We Take Manhattan." The song was one of three Cohen songs introduced on Famous Blue Raincoat—the others were "Ain't No Cure for Love" and "Song of Bernadette" (which Warnes co-wrote and, unlike the other two, Cohen never recorded). Like so many Cohen songs, "First We Take Manhattan" is quite cryptic lyrically—you'll find fan and critic interpretations that say it is about political and/or psychic extremism, the dispossessed, or, 180-degrees from that, about the perils of the music business. Warnes has her own ideas, but notes, "Leonard works from a stream-of-consciousness sometimes, and I don't always know what the lyrics mean. I just need

some seed of truth to be there." It's a driving, modern-sounding track, a stirring kickoff to the nine-song album.

Beck says, "The first thing recorded in 1986, once we were officially making the record, was a click track and a sequenced bass for 'First We Take Manhattan,' which I hurriedly constructed after hearing the rehearsal the day before our first tracking date, and having the uneasy feeling that it wasn't going to happen the following day. Vinnie [Colaiuta] had set up the night before and got his sounds, so I asked if he would do a favor and play to this click track and sequencer. Jennifer went into a booth and did a vocal, as well. Vinnie was familiar with the song because we had rehearsed it previously. He played that drum track in one take and I just smiled real big and said, 'There's my drum track.'"

The next element to be added to the song was Stevie Ray Vaughan's loose, bluesy guitar part, which contrasts so nicely with the metronomic drive of the main rhythm. Beck knew Vaughan from Austin, and each had sat in with each others' groups in the past, so when Beck heard that Vaughan was going to be at the Grammy Awards in L.A. in February 1986, he tracked him down at his hotel and asked if he would play on "Manhattan" that very night. Vaughan had not brought a guitar to L.A., but agreed to use one of Beck's Strats. A session was booked at the Record Plant, with Tim Boyle engineering, and in the wee hours of the morning, Vaughan laid down several takes for Beck and Warnes.

From there, Gary Chang overdubbed his synths, Beck added a final bass part, Robben Ford contributed some slinky guitar, there was a touch of percussion, and Warnes re-sang her lead vocal, either on the AKG C12, or a mic Youdelman discovered late in the album sessions—a B&K testing mic that lived in the ceiling of The Complex. Several other engineers were involved along the way, too, including Larry Brown, Charlie Paakkari, Paul Dieter, Paul Brown, Steven Strassman and Csaba Petocz, and a couple more studios—The Enterprise and Salty Dog.

The album was mostly mixed at Amigo Studios in North Hollywood by Frank Wolf (along with Beck) on Studio B's SSL, with additional mixing work by Massenburg, Larry Brown and Henry Lewy on certain tracks. The slightly unsettling passages of spoken German at the beginning and end of "First We Take Manhattan" was an idea of Lewy's—"We wanted to snag people's attention, and that was Henry's call," Warnes comments.

When the album was released in late 1986, "Bird on a Wire," "First We Take Manhattan" and "Ain't No Cure for Love" garnered considerable radio play on different formats, and the album as a whole was embraced by Cohen's followers, Warnes' fans and also, more generally, audiophiles who were impressed by its deep and pristine sonics. The record breathed new life into Cohen's career in the U.S., and also helped establish Warnes as a serious artist in ways that her previous chart triumphs had not. Coincidentally, in 1987 she also scored a Number One hit with her duet with Bill Medley from the mega-popular soundtrack for *Dirty Dancing*, "(I've Had) The Time of My Life" (another Oscar winner!).

Famous Blue Raincoat continues to earn respect and new fans with each passing year. A 20th anniversary edition, remastered by Bernie Grundman and featuring several bonus tracks, came out in 2007, and a new a vinyl version (also mastered by Grundman) will be released this year. It remains perhaps Warnes' crowning achievement.

"When you have the proper alchemy and all the secret good wishes of everyone, fireworks can happen," Warnes says, "and you know you're on to something. About midway through the record, we knew it was great. Nobody was shouting about it at that point, but Roscoe and I knew we were sitting on something fantastic." ■

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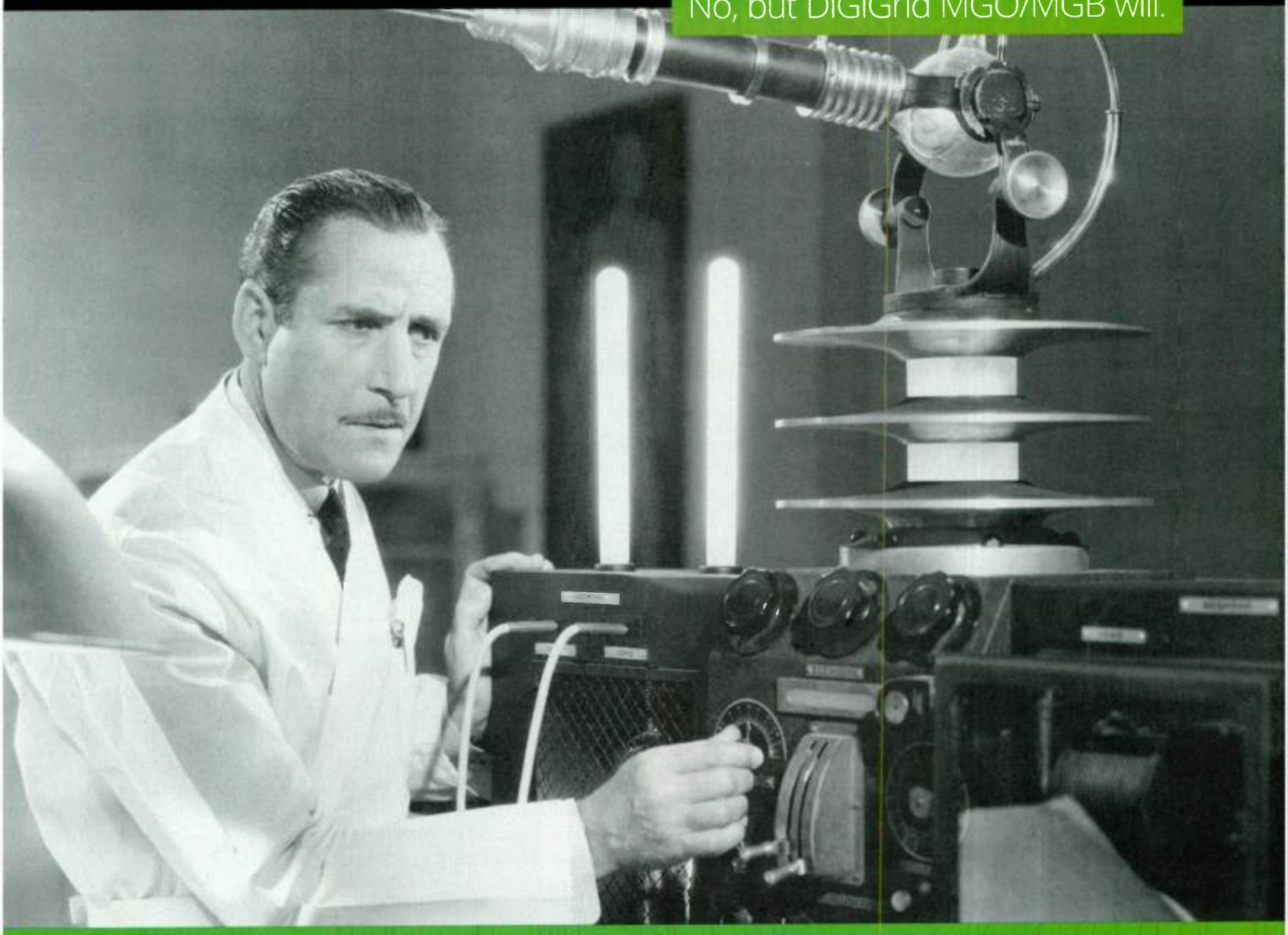

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MIKAEL JORGENSEN & GREG O'KEEFFE

Album Emerges from Long Friendship and Inventive Process

By Barbara Schultz

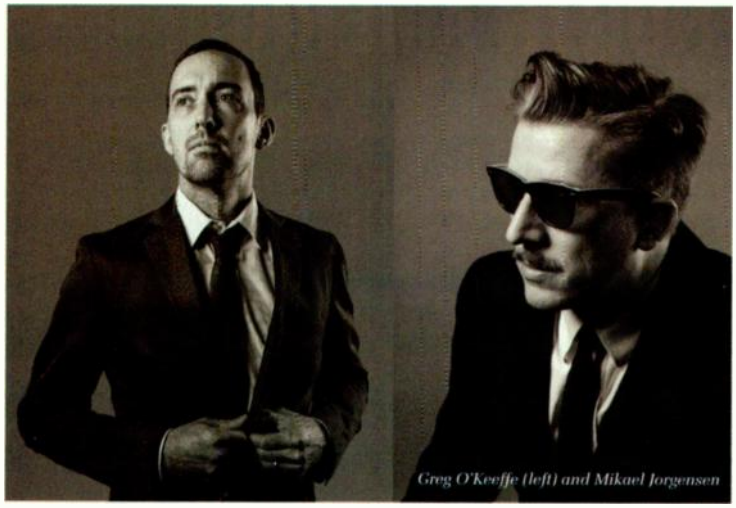

Photo: Allen Farmelo

Greg O'Keeffe (left) and Mikael Jorgensen

The latest from Wilco keyboardist Mikael Jorgensen is a collaborative record that took years, and a couple of different forms, to arrive. Jorgensen and drummer Greg O'Keeffe—longtime friends who have been bouncing musical ideas off of each other since they met in 1995—kept things loose at first, with writing/demo sessions in their personal studio (Brooklyn, N.Y.).

"Throwing some mics up and recording improv is a great way to generate ideas, especially now that we have families and our time in the studio is less luxurious," Jorgensen says. "It was a good way to start. Then I took the raw recordings and refined some of the song ideas. We did some more demo'ing and some more overdubbing and then said, 'Let's go record *properly*.'"

They booked a few days in The Bunker Studio with the idea of laying down permanent basics. "This was the former Bunker studio—they've since moved to a larger space—but it's the same gear and same great vibe and atmosphere," Jorgensen explains. "We recorded 12 or 14 songs very traditionally: guitar, bass, drums, keyboards, acoustic guitar and scratch vocals."

Jorgensen took the tracks back to their personal studio—which he says is "a humble little barely climate-controlled space"—to flesh out parts and arrangements. He soon found himself bored with the results and the process, and then hit on the idea of replacing most of the instrument parts with synth sounds.

"I use synths on records all the time, but I hadn't viewed them as the integral part—the sonic core," he explains. "More traditionally, I've used a guitar or piano part to form the harmonic structure. But I thought, if I replace everything with synths, everything's on the table.

"I worked on the first song on the record, 'Armz,'" he continues. "The initial version was a breezy, '70s acoustic, open-tuning kind of thing, more Stephen Stills than Kraftwerk." Jorgensen built a new electronic arrangement using mainly his Moog Little Phatty for bass parts, an ARP 2600 to re-create melodies and harmonics, and his EMS Synthi for more "squiggly electronic sounds."

"I replaced everything but Greg's drums," he says. "I thought, 'This is awesome, but holy shit, I have so much more work to do now.'"

Recording to Pro Tools, Jorgensen dug into his synths and effects until the tracks grew into new, unique sonic worlds. "The chain would usually be the synths through a Moog analog delay and the [Electro-Harmonix] Holy Grail reverb and a Source Audio Soundblox [Tri-Mod] phaser—it's got a good Mu-Tron-style phaser, which I used quite a bit—and then also a Fulltone Tube Tape Echo tape delay."

Post-effects, Jorgensen's synths all went through a Universal Audio LA-610 channel strip before going into his RME Fireface 800 audio interface. "The LA-610 helped beef things up, round the edges and make it sound really thick, which is very satisfying," he says.

After working away for a while, bouncing his new ideas off of O'Keeffe, Jorgensen felt he needed a fresh perspective, so he played some rough mixes for producer/engineer/ Butterscotch label head Allen Farmelo.

"I brought him to my studio and told him, 'Here are the ingredients,' and I brought up the Pro Tools session. He heard it and said, 'I want to do this so badly. I'll mix the whole record.'"

At that stage in the album's evolution, Jorgensen had an infant son at home, so it was a great relief to pass the tracks along to someone who could focus on the details. "Allen would work on a song, and my son and I would come over to his studio and listen. Allen would get it 90 to 95 percent there, and I would just make a few little tweaks," Jorgensen says.

Most of the songs became something completely different from the rock tracks Jorgensen and O'Keeffe had made in The Bunker. "Armz" is still very tuneful and rhythmic, but hissy, processed synths continually buzz in and out and weave around each other. "Where to Begin," which Jorgensen says started as "acoustic and finger-picky," features a creepy processed Jorgensen vocal on top of choir-like keyboard tones.

There is, however, a lone guitar-driven song on the record: "Esartee" has swirling synth sounds added, but it retains a lot of its original rock/pop structure, which is a bit reminiscent of They Might Be Giants. "That's one of the few songs that has the original electric guitar," Jorgensen says. "I could have done more to it, but there was something about it that was so energetic and kind of manic, like the spirit of it matched the record even if the sonic quality of it is different." ■

more online

Listen to samples of "Armz" in its original and finished form. mixonline.com/022014














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Dave Tozer in his Manhattan recording studio.

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Frank Scheuring at the Fairlight Constellation

CAPITAL AUDIO POST

BRINGING SOUND SYNERGIES TO D.C.

By Mark R. Smith

For Frank Scheuring and Chip Sovek, it was a matter of necessity. After many years in the audio post business, much of it with an established Washington, D.C.-area facility, the doors closed in late 2012, and it was either start making calls to see who's hiring or take the plunge and open up their own space. They chose the latter, opening as Capital Audio Post last March in nearby Fairfax, Va.

"We were the last people standing" at the defunct facility, Scheuring recalls. "We thought about getting jobs elsewhere, but we already had work lined up for the fall and didn't want to let our clients down. And since we had talked about founding our own place, [the company going out of business] provided the kick-in-the-butt we needed."

When they got the news of the closing, the duo immediately set out to create their 3,200-square-foot, three-room, Fairlight-based house. They had the enviable problem of jobs in the pipeline, which could be seen as both a blessing and a curse. It meant they had to move fast.

"We went into hyper-planning drive about a year ago," Scheuring says. "The hard thing was that we were still doing jobs at the old facility while we were scouting to rent space and building out. That was pretty stressful for a while. We were running wiring and setting up rooms late at night, then taking naps, then getting up and starting over."

CAP moved into space in the Merrifield section of the D.C. suburb of Fairfax, Va., in November 2012 and held its first session the first week. "We didn't even have any carpet yet, then came the crush of the holidays," Scheuring adds, "but the good news was that we were really busy and got our work done."

Capital Audio Post co-founders Frank Scheuring and Chip Sovek

Audio 1 control room at Capital Audio Post, with Fairlight Constellation and JBL LSR 4328P 5.1 monitoring

That rush "slowed down a bit by February," so they finally had some time to refine the facility, Scheuring says. "Given the stress of that period, I'm really appreciative of the fact that we managed to hold on to 90 percent of our work. It's just Chip and I, but we are now at the point that we hire freelancers to handle overflow work."

THREE-ROOM SETUP

Post-production work at CAP takes place in three mix rooms that feature the Fairlight Constellation XT, two of which are set up for 5.1, the other for stereo—JBL LSR 4328P speakers throughout. All rooms have Waves plug-ins and 55-inch HD video monitors. They also have a 300-square-foot recording booth that includes a 40-inch HD video monitor and four mic lines, with Neumann, AKG and Røde microphones to handle voice-overs.

To accommodate production workflow common to the area, they also installed a main video edit suite featuring a Mac-based Final Cut Pro 7 with a 47-inch, multi-format HD LCD video monitor and a 23-inch HD CRT broadcast monitor—"but we are in the process of adding the Adobe system, because that seems be what our clients are asking for," Scheuring says. In February, a second video suite is opening with Final Cut 7 and Adobe Premiere. The original video room will convert to Media Composer so that they will be able to work in all formats.

Rounding out the equipment list are Zephyr and APT codec ISDN boxes, a Sony SRW-5500 HD video deck, Dolby E encoding/decoding...and, Scheuring notes, a beer fridge.

As for the main technology, know that CAP is Fairlight Country.

"We are of the opinion that the Fairlight is a faster, more efficient way to go, because it is specifically geared for post-production," Scheuring says, pointing to the way the controls are laid out on the controller. "Using a mouse and keyboard in other DAW setups can be cumbersome, because you constantly have to drag your mouse around or remember shortcuts. On the Fairlight, all of the controls are at your fingertips and accessible very quickly."

As far as the facility's layout, Scheuring and Sovek didn't have time to hire a designer, but the folks who run the U.S. Green Building Council would surely approve of their foundation: In the mix rooms, CAP features wall reinforcements made from recycled tires, as well as recycled wood floors that were pulled from a soon-to-be demolished house.

GETTIN' IT DONE

"What we've done," Scheuring says, "is the best we could in the time that we've had. That said, we're happy with how the rooms turned out, so there's no need to make any upgrades at the moment. And we've been getting compliments from our clients so far."

Those clients include The Discovery Channel for a miniseries called *Heroes of Hell's Highway*, via New York-based production company called Big Fish Entertainment, which also produced the CAP-cut *D.C. Cupcakes* for The Learning Channel and *Bomb Patrol: Afghanistan*, which aired on G4TV. In addition, CAP cut an indie film for Open Door Productions, a production company out of Richmond, Va., called *Capgras*.

Still. much of CAP's work originates locally, from such clients as D.C.-based National Geographic, and via independent productions. In early 2013, the team provided audio post for a two-hour special for Nat Geo's international division called *The Next MegaQuake*, as well as some promos; they also completed work for Maryland-based shotgun manufacturer Benelli USA. On the docket is another feature-length doc for Ogden, Utah-based Highway 89 Media.

What's next? CAP's first sound effects library, with the release slated for spring 2014. To be called Snap! Crunch! Pop!, it will contain a variety of noises from various objects that make those sounds. Scheuring and Sovek are also considering partnership opportunities with other local production/graphics houses.

"The idea of competition always seems a little silly to me," Scheuring says. "You expect it, but you have to understand that there are other opportunities to work together. We find New York to be a very collaborative market, and we're trying to encourage that kind of synergy here in D.C." ■

Mark Smith is a contributing writer to Mix.

On the Cover

By Tom Kenny // All Photos by Michael Vecchio

PRODUCER DAVE TOZER

Philly Musical Roots, With New York Production Style

Dave Tozer is a true music junkie, and his passion is infectious. Writing, recording, arranging, producing, editing, mixing—he just thinks of music that way, as a complete picture, a visual, a mood, a vibe, an emotion. From the concept of the song, to building the melody, rhythm and lyrics, he conceives of the process as one unified piece. You can almost see him flipping the sheets while conducting a big band at the Copa, bopping and waving his arms. Music with style. Music as a moment.

He also lives the life. Walking the streets of New York, ten minutes to his Night Fox studios. Calling *Mix* on his way to mix at 11 p.m., later finishing a track for a UK artist on New Year's Day. He collaborates, records around town, knows the musicians. He's known primarily for his work with John Legend, and theirs is a great story going back to the late-'90s in Philadelphia, but he's done so much more, with both A-listers like Kanye and Justin Timberlake and Jay-Z , and with new artists on their way up. He writes, plays, produces, records and mixes in various combinations depending on the project. For Legend's projects, including this year's Grammy-nominated, *Love in the Future*, he does it all.

While his music and recording story might seem typical—small-town kid falling in love with guitar, parents who listen to a variety of music, a Tascam 8-track and then an internship at a studio—the path was infused by music, making music, "just for the love of it." Late-night jam sessions, getting bands together, playing out, shopping demos, picking up the *Yellow Pages*, writing songs, calling A&R reps. He didn't know the rules. But he did come of age at the vortex when rock began to wane and hip-hop exploded. He loved them both, and again, he lived the life. He immersed himself in the scene. He ate, slept and breathed music. He crashed on friend's floors.

And now he's having fun, doing what he's always done. He can dig deep technically as well as anyone you will meet, and he is well versed—mostly self-taught—in the fundamentals of recording and music. But it's the spirit and the scene and the vibe and the voodoo of making a song, from concept to distribution, that drives him. But back to the beginning...

So what brought you into music, then combining it with recording and producing? What was the drive?

In hindsight, I was always an artist in some way. I was always interested in art. As a kid I used to draw a lot—would copy the album covers, taking a plain piece of paper and put it over the top of the album cover and trace things. My dad listened to a lot of old rock 'n' roll, and I can remember tracing the Rossington Collins Band. They had this album, and on the front was this sort of bird, and this weird little font, and flaming...I distinctly remember tracing that cover. Eventually I stopped tracing them and started drawing them by eye. I was always into various arts. That makes sense to me now in looking back, and how recording fits; it's a sonic art.

Did you want to write music back then?

No. I didn't write straight from the beginning. It was more guitar. I was really drawn to the guitar—it was so accessible, and I just loved it so much. My friend's dad had one in his attic that he wasn't using, so I asked if I could borrow it. I sort of claimed it as mine. It was strung left-handed, so I think we restrung it, or I started playing it upside down right-handed or something, but eventually I got it sorted for right-handed, and I remember the action set really high so it was really tough on your fingers. It got my fingers tough really quick.

I would ask a friend or two about chords. I never took formal lessons, but I studied it on my own and eventually I sought out the answers and tried to understand. I had a basic understanding of theory and whatnot.

Were you by yourself at this point? Or were you bouncing off people?

A lot by myself. It wasn't as much about recording then as it was about reproducing a song on the guitar, to play the intro for "Over the Hills and Far Away" by Zeppelin. Those were the things I was trying to learn. I got into recordings because I was essentially studying recording to learn guitar parts. I would have my CD player, and I would rewind it a little bit to learn a part, and keep chipping away it at until I learned it. Eventually it went beyond the guitar and I started to try to understand what the bass parts were doing, or what the drums were doing—I was dissecting arrangements. I didn't quite know I was doing that at the time, but that's what I was doing. I remember doing it with Marvin Gaye tracks. I'd study the notes and try to understand why things did what they did. If I couldn't figure it out, I'd look it up in books.

It's how parts are fitting together...

Exactly. In hindsight, it probably would've been a lot easier for me to pay for lessons, but I never did. [*Laughs.*] In a lot of ways, what was exciting to me about music was that I didn't have to do it. It was my own thing that I was drawn to.

And the music? What were you listening to early on?

Early on I was drawn to a lot of rock 'n' roll because it was around my house. My parents played a lot of classic rock, things like The Beatles or Led Zeppelin. My dad was also listening to things like Blue Öyster Cult, The Marshall Tucker Band, The Allman Brothers, Pat Travers, Rory Gallagher, Stevie Ray Vaughan. Even if I wasn't consciously paying attention to it, it was there. And then as a teenager I got into a lot of hip-hop because that was the new music. I was really taken with it. I remember being profoundly impacted by the first 3rd Bass album, around '88-'89, and also the early N.W.A. stuff, the Eazy-E album and *Straight Outta Compton*. And there was an album by The D.O.C., which was also produced by Dr. Dre. I was also listening to what they call "conscious rap"—I loved KRS-One, all those Boogie Down Productions records, A Tribe Called Quest, a lot of that Golden Era Hip-Hop. I was in rural/small-town South

Dave Tozer in his Manhattan recording studio.

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Tozer likes his productions to have a mystical quality and what he calls "the voodoo."

working at the studio was invaluable—learning the studio etiquette and the dialog. Later on, once I did produce records, I knew how to talk to engineers as a result of that experience.

How did you meet John? How has this relationship evolved?

A mutual friend—journalist Max Blumenthal— was at University of Pennsylvania. Max and I started hanging out and listening to records. He played drums and had a great music collection. He turned me onto things like Frank Zappa and Nina Simone; we started listening to the Portishead *Dummy* album. He told me, "There's this kid at my school, John Stephens, he's a pretty good R&B singer. He's a pretty straight-laced guy. But you should meet him." [*Laughs.*] We had this bass player friend of ours, Nathan Sabatino, who went on to engineer and produce Dr. Dog, he had this basement setup where we could all play music. So we said, "Why don't we invite John over there?" So he came by. John played a little keyboard, I played a little guitar, we sang some songs—some Smokey Robinson and Stevie Wonder tunes—and I thought, "Okay, this guy is pretty good. He's cool." I heard a demo of a song he had written, called "Just in Time," and I thought "Wow, this guy can write, too!"

By this point I'd started to become a songwriter myself. When I heard this great song, alarm bells were going off in my head. We started hanging more, and I think I'd hired John on some gigs—I would get hired to put bands together for gigs in town. I remember we did a gig at a restaurant one time in Philly—it was an outdoor thing, people were eating inside, and we were outside "testifying," as it were, doing our thing...[*laughs*] And the maître d' came out and said, "Can you have the singer stop singing?" It was basically too much for the dinner crowd inside! We carried on the rest of the gig just playing instrumentals. I'm sure John wasn't very happy about that. [*Laughs.*] But that's the guy who became nine-time Grammy winner John Legend! Getting asked to stop singing at a restaurant!

We were a good combination. Even early on, we were writing very good songs together. I think about the demos we did around the year 2000-2001, and when I hear those now—the production wasn't too good, it was very primitive—but the actual writing itself still holds up pretty well. I knew we could really do something together and I could focus on his project. Between writing songs, rehearsing a band, producing the demos, shopping material, it was a full-time project. In some ways, I was almost too naïve. I didn't have a backup plan.

Tell me about his voice. What's your take on John's voice over the years?

He just has a wonderful voice. And not just a great voice—he's a great singer. They are two different things. He's got this great, unique instrument, and he knows how to use it. He's been a musician since he was 5 years old. He knew what proper phrasing was. He was steeped in soul music and gospel. He knew what proper harmonization was. He has such a great instrument, and that makes capturing it relatively easy.

I've learned more about miking over the years just experimenting with him. At a certain point I came to realize that what I really liked on John was a [Neumann] U 47. John has some good growl in his voice, and that mic has a nice upper-midrange bite. With regard to the signal chain, the U 47 into a Neve 1073 or 1081 classic pre, then a [UREI] 1176 or [Teletronix] LA-2A compressor...mostly an 1176. Then going into the console. I also do a lot of recording to tape. He sounds really good going through a tape machine, getting some of those upper harmonics.

DAWS and emulations and virtual instruments have come a long way since you first began dabbling in songwriting and producing. Does the technology inform your arranging?

I like to be simple. Your songwriting still has to be great with just a voice and a piano. I'm still into songwriting in the classic sense—I wanna hear great chord changes, I wanna hear melodies, I wanna write great lyrics. But what's really cool about some of this technology is that it can inspire the writing. You can pull up these sample libraries or a software synth or anything around you. Maybe you have a preset that does something weird you didn't expect. Sometimes it could just be one sound that'll inspire the whole record. When I started a song with John called "Asylum," that whole musical bed, the whole production started from an electronic kick-drum sound that was on a patch that I pulled up. And those are the times when it's really fun to have that close by.

Do you still love recording guitar?

I do! Guitarists, maybe more than other instrumentalists, are really dialed into the tone of their guitar. I love recording guitar with great tone. There's an intro, on the *Love in the Future* album, where just John and I did a live, off-the-cuff bit with me playing guitar and him singing. We cut it together, but that was me playing through my '68 Fender Deluxe Reverb, silverface with blackface circuitry in it. It's a great classic amp. And I'm playing an old-school Gretsch Country Gentleman, and it just has that sound, and it has a slapback analog delay on it. It almost has that '50s guitar sound, real murky. It just inspired that performance. That's the key—you want the feeling. I deal with feeling and emotions when I'm making music.

Continued on p. 67

Chosen by Ear

Chosen by ear, Dynaudio monitors are found in the world's leading broadcast and production studios.

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JOHN MEYER

—A LIFETIME OF SOUND SCIENCE—

By Tom Kenny

John Meyer is smart. Everyone who meets him comes away with that. And he can talk about an endless variety of subjects, learned and articulate in them all, with a rare ability to break down complex technical concepts into simple, often visual, analogies. He's scientist smart, and at the same time infinitely accessible, often displaying a dry wit or drifting off into his passion for cameras and lenses and the visual arts. But his lifelong passion has been sound, sound reproduction in particular. Linear sound reproduction systems to be even more particular.

His background has been covered elsewhere—radio telephone license as a Berkeley teenager, hi-fi experience, finding a training ground at McCune Sound, one of the epicenters in the birth of the modern P.A. Building Steve Miller Band's P.A. for Monterey Pop, then experimenting with the Grateful Dead, Tower of Power, Metallica, Herbie Hancock and so many other artists. Developing the first commercially available self-powered studio monitor, the HD-1, then modifying the approach and applying it to concert sound with the MSL-4.

Through it all, from his early '70s research in Switzerland, to the development of the tri-amped JM3 at McCune, through the introduction of LYON this month at ISE, the concept of linearity weaves a thread, a theme for his lifelong passion of creating better sound no matter where the audience might be. Theater, cinema, concert hall, studio, school auditorium or baseball game—a linear approach, he would argue, benefits all.

This year marks the 35th anniversary of Meyer Sound, started by John and Helen Meyer in 1979. It's been 25 years since the introduction of the HD-1. Just a few weeks ago, John Meyer was inducted into the TEC Awards Hall of Fame.

But he hasn't slowed down one bit. He's entered studio, touring, theater, installation, and cinema markets over the past two decades. Heck, he built Constellation! And this month he's back where it all began, with the introduction of LYON, a smaller sibling of LEO, to the live sound world.

Because a conversation with John Meyer can dance and shift and move and circle, while always staying on point, we've broken down a few things he had to say recently from his Berkeley offices. What follows is in John's own words.

A SYSTEMS APPROACH

When you think about what it takes to create a loudspeaker, it's hard. It's not just the loudspeaker, which is the mechanical part. There is the amplifier, the electronics and all the things that go around it so that it can convert someone singing into a microphone to being able to hear it up to a thousand feet away. How do we do that so that it sounds like it's fun to go to, like listening to your hi-fi on a grand scale? Right away, you know it's not something you can do on your own. In this world you need electronic people, mechanical engineers, now software engineers, so many disciplines.

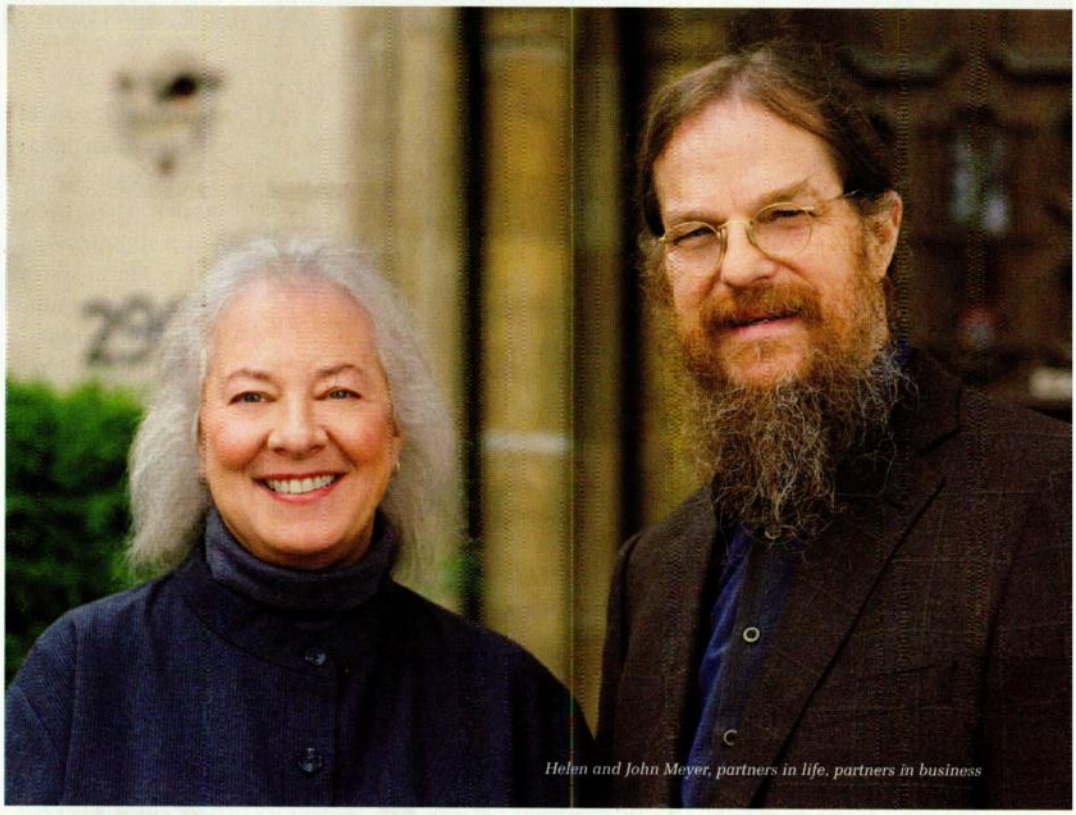
But what really matters is that we're trying to create acoustical energy. A big kick drum might produce 5 to 10 acoustical watts of power. It's real energy. Power is power. A piano might be a half watt or one watt of acoustical power. A full symphony at full power is about 60 acoustical watts. But acoustical power is what we want. We don't hear power, but it takes power to push a field of ions electro-acoustically to create pressure. We basically have two considerations: How much AC power can we get? How much acoustical power do we need?

Let's say we want to reproduce a drum at 10 acoustical watts. It moves the driver back and forth maybe a half an inch to create this power. So if we were 100 percent efficient, we would need 10 watts; if it's 10 percent efficient, we need a 100-watt amplifier. For 1 percent efficient, 1,000 watts. Why do we care? If we have a 1,000-watt amplifier and 1 percent efficiency,

this energy has to go somewhere. We have 999 watts of power that has to be dissipated as heat either in the amplifier or speaker. We have to get our efficiency up, or we have to dump it out. So the speaker and amplifier become a marriage.

The biggest problem in the early days was that you had power amplifier people making amplifiers and speaker companies building speakers. Even though people liked using certain amplifiers, we knew that we would have to integrate the two systems. There was a time when people thought the amplifier was as important as the loudspeaker. We knew these had to integrate, and we knew they would have to be powered. The only way the technology would evolve was through powered speakers.

So now we have to look at systems. What we really want to do is build a 10- or 20- or 50-watt amplifier, but that sounds weak and miserable and wimpy in the world of entertainment. But if we could do that, it would be huge! Amazing!



Helen and John Meyer, partners in life, partners in business

ON MEASUREMENT

In Switzerland, in the '70s, we were studying how to measure so that we could know what we had achieved. At that time, there was a lot of controversy about how to measure loudspeakers, how to measure speakers in rooms. One idea was you could light off an explosion, say a firecracker, record it for 10 seconds, do long-term analysis, and that gives you the entire characteristic of the long-term reverberation. But it would tend to ignore the little things.

For instance, you could run a 10-second analysis, say noise in a speaker, and take a graphic EQ and move it up and down real quickly a couple of times, and you won't even register it over the 10 seconds. It's buried. The problem is you have to aim your measurement over what people can hear. They can hear the movement of the equalizer. The brain listens to long-term and short-term events. So we started to build an analyzer that would be more like the way we hear.

At that time, certain conditions came up when you were trying to differentiate one tone from another, among very closely spaced tones. There seems to be a certain amount of masking, so this became a third-octave masking. You can't say arbitrarily that you only have to do third-octave analysis. There are only certain conditions where that's true. But the industry likes to make things simple, so we only need third-octave analysis. That's only good for some conditions.

So we started at building analyzers where we could change from 48th- to 24th- to 1/3-octave, to octave and things like that, to try to get a handle on what we should measure that people could judge subjectively. When we started the company, that was one of the first things we did. We worked with Stanford University to create an analyzer, paper, and the whole idea of how to measure sound. Because if we don't know how to measure it, we won't know if we've achieved anything or how to reproduce it. With computers, even back in the '70s, we could compare the file on the A side, which is what we picked up with a microphone, and then record the room with the B side and compare those two files. That analyzer won an R&D 100 Award in the '80s.

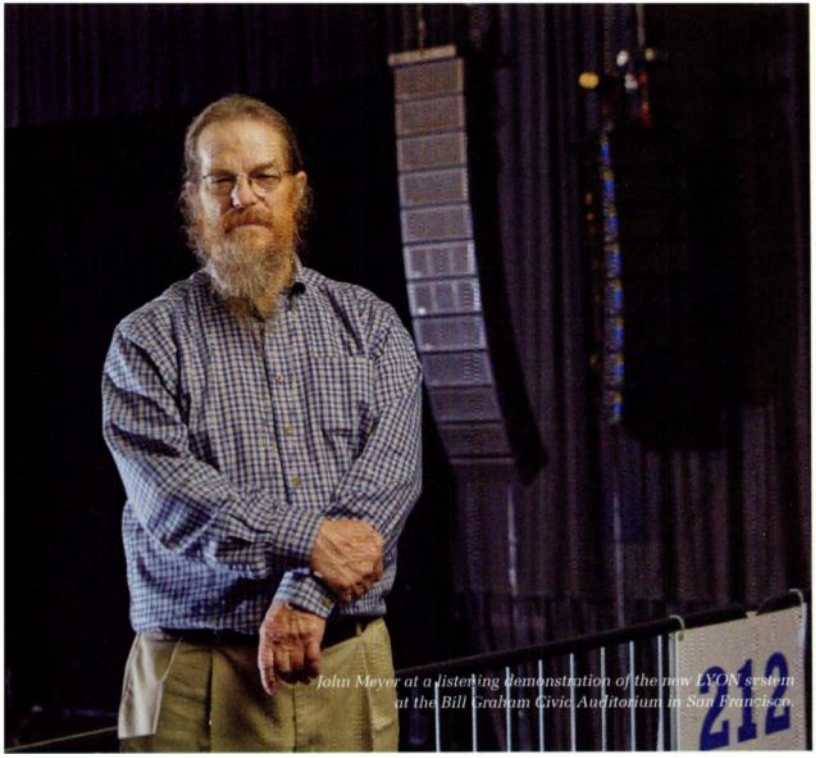
ON LINEARITY

In concept, it's pretty simple. What you put in is what you get out. That means that you can pick up, say, a voice and violin, and those two signals feed an amplifier, then you can pull those out and send to a loudspeaker, and the voice and the violin will sound separate. The linear system doesn't merge them into new notes. In other words, it doesn't create intermodulation products. The notes stay completely separate. It's not a trivial thing to do. It's a trivial thing to think about: We want to put two tones in and get two tones out and nothing else. But it's hard to do.

We like linear systems in engineering because they are easy to understand if you achieve them. But in loudspeakers, the minute the cone starts to move it starts to shift some of the frequencies, so you have frequency modulation. We can't really build something perfectly linear because the nature of the motion itself would change it.

If you start out in the linear world, linear theory, you don't want anything that knowingly creates problems, like amplifiers that are clipping. The first thing you do is try to set up systems so that everything is running in its optimum range. The amplifiers are not running past their ability to produce power, they're not hitting the rails. You get as close as you can.

But then air isn't completely linear. At the normal levels we talk to each other, it's very linear. But near the loudspeaker, you push air into nonlinear motion in order to be able to get enough power to project hundreds of meters. It then drops off in distance, just like a light bulb. As you move away from a speaker, the power goes down, regardless of how directional it is. Generally, if you're 100 feet from a speaker, and you move to 200 feet, all speakers, regardless of



John Meyer at a listening demonstration of the new LYON system at the Bill Graham Civic Auditorium in San Francisco.

how they start out, half their level will drop off. But in the near-field it can get confusing.

Rooms, however, are linear. Reverberation is a linear phenomenon. But you have to be careful with that thought because even though it's linear—meaning it behaves the same at low level or high level—we hear it differently. If you set off a big explosion in a room that's real reverberant, it sounds a lot different than if you clap.

That's why the cocktail effect is so bad in restaurants or in a church—when you have a few people in there, it's okay, but when people come and add energy, it just gets louder and louder and louder. That's the nature of reverb. Linear systems can't change that, obviously, but one of the things we found interesting about listening to the new LYON at the Bill Graham Civic Auditorium is that it didn't sound like you were in a big cavern. It sounded like you're more isolated from the space. So we'll probably discover things as we continue to develop this.

REVERBERATION

Starting in the 1950s, we as an industry introduced the thought that you could add reverberation later to music, because it's considered a different event. The whole industry started developing reverb units that you could add later. You put the musicians in a room that doesn't have any reflections. You capture the original, then add early reflections or reverberation back to it, which is still kind of the thinking today. For a long time we've been trying to figure out why people didn't like electronic reverb in physical systems.

It turns out, almost across the board, everyone decided that since reverberation was an audience experience and didn't have anything to do with musicians, you could do a time-variant solution. Why? Well, it stabilizes the frequency response so you don't have feedback.

John Meyer testing the Meyer Sound 500 loudspeaker in 1986.

We, however, got excited about this patent that came out of New Zealand to do electronic reverberation by more of a brute-force method, no time-variant solution. I wanted to try that out here. That's why we built the Don Pearson Theatre [at our Berkeley headquarters], to test it out with musicians. Theoretically it would be equivalent to what a room would do. Rooms don't do time-variant solutions, they just read echoes.

The rules aren't random; they are quite orderly. They do the same thing over and over again to a very high accuracy. This gave us the opportunity to try our theories with Constellation. We put a completely linear experiment together at the Pearson Theater and we brought in a string quartet from UC Berkeley and didn't tell them too much. Well, they liked one of the rooms we had copied that we knew they had played in. They recognized it, they liked it. Then we told them that when the donors came in we would turn it off, so it would be dead, like a studio, then we'll turn it back on again. So we do that, and they say, "Well, you'll need to give us a little time to adapt to it, to adjust." I thought, "What? Adjust to what? My whole team is here." They say, "Well, we can't play the same way anymore because we can't hear each other. It's like a studio, and we'll have to adjust our playing. We'll have to stretch our notes."

We think, "No, you can't do that, just coast through it. Don't change your playing." We try that, they play, and it's like driving through a tunnel with your eyes closed. No one I've met within the scientific community truly realized how much musicians interact with the space. How we

Continued on p. 63

STUDIO MONITORS

An Abundance of Flavors for Audio Professionals

By the Mix Editors

Studio monitoring is about as subjective as the audio industry gets. Every engineer has a favorite, and every engineer is at least willing to listen to something new that might change their mind. After last year's push toward 4- and 5-inch models, designed for the desktop, there seems to be a move this year toward 6- and 8-inch models, filling up project rooms and commercial spaces worldwide.

Mix takes a look at recent introductions (excluding last week's NAMM announcements) in near-field monitors with 8-inch woofers and below that have debuted within the past two years. If a company has more than one model in its line, we've featured the largest woofers, up to 8 incheswith mentions of their siblings at the end.

ADAM Audio F7

ADAM Audio's F7 features the company's proprietary X-ART tweeter, assuring utmost clarity of the high frequencies. The 7-inch glass fiber/paper-midwoofer comes with a 37mm voice coil. It has been designed to perfectly complement the ART tweeter, starring in both the deep registers and the musically crucial midrange. Two Class-A/B amplifiers drive the F7 with 100W RMS/140W Music, helping provide a maximum SPL of 109 dB per pair.

Akai RPM 8

The RPM8 reference production studio monitors are specifically designed for use with MPC workstations/controllers. RPM8 studio monitors are two-way, active, speakers made with producers, recording engineers, remix artists, DJs and other musicians in mind. Each monitor features an 8-inch woven-Kevlar low-frequency driver with 80W RMS of continuous amplification for robust, full bass all the way down to 39 Hz.

Alesis M1 Active 520

The rear-ported Alesis M1 Active 520s feature bi-amp design (25W/50W; 5-inch woofer and ¾-inch soft-dome tweeter), XLR and ¼-inch balanced inputs, Hi, Mid and Lo frequency EQ switching, and a top-mounted, integrated power switch/clip light bar. A custom crossover avoids the crucial vocal midrange. The low-resonance bass reflex cabinet features radiused edges to reduce edge diffraction and a tuned port for bass extension.

Barefoot MicroMain35 Gen2

Barefoot Sound's MM35 three-way active system features the company's MEME (Multi Emphasis Monitor Emulation) technology, modeling the essential response and translation characteristics of other classic studio monitors with the turn of a knob. The MM35 is also augmented with advanced new electronics and drivers giving it even greater dimension and transparency across the entire audio spectrum.

Behringer Nekkst K8

The Nekkst K8 (8-inch) monitors resulted from Behringer's partnership with speaker designer Keith Klawitter, who founded KRK Systems in the 1990s. The K8 includes a long-throw 8-inch woofer with glass-fiber cone and a 1-inch silk-dome tweeter (150 watts total). Inputs include USB and two servo-balanced analog (XLR, TRS and RCA) that can be used simultaneously.

Dynaudio DBM50

The DBM50 two-way active near-field monitor includes a 7.5-inch extended-excursion woofer, 1-inch high-resolution soft-dome tweeter, powered by a 2-channel 50-watt amp (crossover frequency at 1,500 Hz, with 6dB slope), all in a housing that incorporates a front baffle tilt for desktop placement and a smooth HF waveguide securing optimal near-field sweet-spot.

Emotiva Stealth 8

Emotiva's new Stealth 8, bi-amplified (200-watt) speakers feature the company's airmotiv folded-ribbon high-frequency transducer, an 8-inch woven polypropylene low-frequency transducer, and cabinet with a 3-axis CNC-milled MDF front panel, extensive internal bracing, and Three-Phase internal damping. In addition, Stealth monitors offer Emotiva's exclusive airmotiv high- and low-frequency drivers.

Equator Audio D8

Equator Audio's D8 (Direct 8) features an 8-inch woofer and center-mounted 1-inch silk dome tweeter in an all-wood cabinet with a tuned 2.5-inch port. The digital amplifier boasts extremely low distortion specs and delivers 60 watts to the woofer and 40 watts to the tweeter. SPL is rated at +106 dB combined @1m.

Event Electronics Opal EX8

The two-way Opal EX8 features a 1-inch metal-dome tweeter mounted in an elliptical waveguide and an 8-inch woofer. The Opal's EX8 midrange/low-frequency driver provides a frequency response of 30 to 10k Hz and power handling up to 1,000 watts. The company states that the EX8 is capable of reproducing midrange frequencies with the clarity and speed of dedicated midrange drivers.

Focal Professional SM9

Focal's SM9 near-field monitor houses two independent speaker systems—a 3-way and a 2-way monitor—within the same speaker cabinet. The 3-way monitor is equipped with a 1-inch pure Beryllium inverted dome tweeter, a 6.5-inch midrange driver, 8-inch bass driver and an 11-inch passive radiator, while the 2-way monitor uses the same Beryllium tweeter with a 6.5-inch woofer.

Fostex PM841

The PM841 is the first 3-way monitor speaker from Fostex that comprises an 8-inch woofer, 4-inch midrange and ¾-inch tweeter powered by a 60W, 18W and 18W independent amplifier for wider frequency range reproduction. The built-in channel divider provides optimal overlapped frequency crossovers. The midrange and tweeter are positioned symmetrically on the left and right to minimize the physical height of the enclosure boxes as well as the effect of diffraction.

Genelec M040

Genelec's M Series models feature new Class-D low distortion amplifiers that operate cooler and lighter than Class-A/B amps and feature Intelligent Signal Sensing (ISS) power management with auto power-off/auto power-on and with the standby power consumption of less than 0.5W. Additionally, the M Series has high-performance drivers, intuitive room response controls, system calibration with XLR/TRS and unbalanced RCA inputs, and automatic voltage selection.

JBL LSR308

The 3 Series is JBL's first line to incorporate its patent-pending Image Control Waveguide. The LSR308 8-inch powered studio monitor features a response of 37 Hz to 24 kHz and a peak SPL of 112 dB. The 3 Series' long-throw woofer and its damped woven composite tweeter are designed to reproduce the transients and dynamics of any mix.

KRK Systems Rokit8

KRK Systems' Rokit Generation 3 line of two-way active monitors are available in 5-inch, 6-inch and 8-inch options, and each monitor in the Rokit G3 line features an upgraded 1-inch silk-dome tweeter that provides a stated response up to 35 kHz, coupled with KRK's optimized, proprietary waveguide technology for superior stereo imaging.

M-Audio M3-8

The three-way M3-8 features an inline design and superior imaging with dedicated low-, mid-, and high-frequency drivers, each with its own dedicated amplifier. M3-8's high- and mid-frequency drivers are coaxial, with the mid surrounding the high, allowing for a compact standard-size monitor that offers incredibly rich audio detail and a wide "sweet spot" for accurate mixing.

Mackie MR8mk3

The MR8mk3 active studio monitor is a powered 8-inch 2-way reference speaker featuring an enhanced waveguide system that aims to minimize reflections and diffractions for a wider sweet spot, plus a custom-tuned rear port to help ensure an even bass response. The speaker has an 8-inch polypropylene woofer and 1-inch silk dome tweeter, and is equipped with matched amps and drivers for an optimized 85W Class-A/B bi-amplified system.

Monkey Banana Turbo8

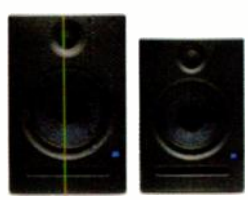
The two-way Turbo8 is available in red and black and offers an 8-inch magnetically shielded polypropylene/ceramic membrane woofer and 1-inch silk dome tweeter with a high-temperature voice coil and rare-earth neodymium magnet designed to have a low resonance (for a low crossover point) as well as high power handling. The woofer's cone geometry also ensures extreme power and heat resistance.

Pelonis Sound & Acoustics Model 42

Created by award-winning studio designer Chris Pelonis, the Model 42 is the smallest in the line of Pelonis Signature Series monitors, which are all based on Tannoy's Dual-Concentric coaxial drivers, with custom cabinets and electronics. The Model 42 puts 4-inch, 2-way Dual-Concentric drivers into patent-pending, rhomboid-shaped enclosures that are fed from a single-rackspace DSP controller/crossover/amplifier unit.

PMC Loudspeakers twotwo.8

The twotwo.8 is a two-way near-field active monitor with a front baffle that is kept as narrow as possible, minimizing the effect of baffle coloration and ensuring sharp imaging. Its 8-inch bass driver is capable of a maximum SPL up to 115 dB and combines Advanced Transmission Line (ATL) bass loading technology with digital signal processing.



PreSonus Eris E8

PreSonus' Eris-Series are 2-way, bi-amped monitor speakers designed to deliver

an accurate response with tight bass and clear upper end. The Eris E8 features an 8-inch, Kevlar low-frequency transducer, driven by a 75-watt Class-A/B power amplifier, and a 1.25-inch silk-dome, high-frequency tweeter with a 65W Class-A/B amplifier. PreSonus states that the Eris E8 can deliver up to 105dB peak SPL.

PreSonus Sceptre S8

The Sceptre S8 two-way monitor incorporates CoActual technology, a blend of custom transducers, coaxial design and Fulcrum Acoustics' TQ Temporal Equalization algorithms working with a 32-bit, 96kHz dual-core processor to manage horn reflection, linear time and amplitude anomalies correction, performance contouring, and dynamic and excursion limiting. The 8-inch low/mid driver and 1-inch, horn-loaded, high-frequency transducer are powered by 200-watt, Class-D bi-amplification, front-firing acoustic ports.

RCF Ayra 8

The Ayra 8 is a 2-way reference studio monitor for near-field applications with a stated frequency response of 45 to 20k Hz, a 1-inch soft-dome tweeter (with a precision directivity tweeter waveguide) and 8-inch composite Fiberglas woofer. Ayra 8 is driven by a Class-A/B design 80W+30W amplifier and features a reflection-free front cabinet design and low-distortion reflex port.

Samson Resolv SE8

Samson's Resolv SE8 2-way active studio monitor produces 100 watts of power and includes a dedicated power amp and electronic crossover that provide accurate tonal balance. The new 8-inch woven carbon fiber woofer provides tight and controlled low-frequency response, while its 1.25-inch soft dome tweeter gives the high frequencies a true, natural sound without unwanted resonance.

sE Electronics Munro Egg 150

The Egg 150 Monitoring System includes a free-standing control unit and integrated amplification with 9-foot matched speaker cables, with monocoque shell construction for a smooth frequency response and no internal standing waves. The ovoid/egg cabinet shape is said to have the best-possible influence over the sound of a loudspeaker, generating no internal standing waves and thus reducing smearing.

Sonodyne SRP 800

The SRP 800 high-power active reference monitor is designed for loud monitoring without any audible loss in detail. A new 175+100-watt bi-amplifier drives the transducers optimally while providing adequate headroom and dynamics; maximum SPL is 112 dB. The SRP 800's enclosure is made of pressure die-cast aluminum that maximizes rigidity, and its silk-dome tweeter is nested in a custom waveguide to produce on and off axis linearity and a wide, detailed soundstage.

Tannoy Reveal 601a

Reveal 601a active monitors have a 6.5-inch LF/MF driver, 1-inch soft-dome wideband tweeter that uses an elliptical waveguide, 90W onboard amplifier, and a sculpted and rigid front-baffle design to minimize diffraction. A front-firing reflex bass port helps to prevent bass coupling from occurring with studio walls, without diminishing bass response, for a greater level of accuracy with less coloration.

Yamaha HS8

Yamaha's HS Series monitors come equipped with newly developed transducers featuring an advanced magnetic field design that regulates the flow of magnetic response to provide natural, seamless sonic transitions. Each component's materials have been optimized to significantly improve the accuracy of signal reproduction throughout the audio spectrum. ■

MIX REGIONAL: SF BAY AREA

L to R: Jody Scott, Thomas Dyani, Chloe Scott and Barbara Pukwana

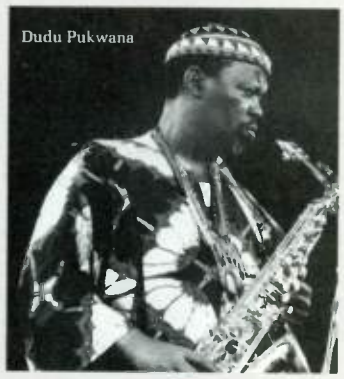
STUDIO 401 AND THE DUDUVUDU PROJECT

Studio 401 recently completed the Duduvudu project, which celebrates the music of the late South African saxophonist Dudu Pukwana and the long, unique history of South African jazz. Dudu and the all-star band, The Blue Notes, left South Africa in 1964, the same year that the late Nelson Mandela began his 27-year prison sentence. The Blue Notes (Dudu, Johnny Dyani, Chris McGregor, Mongezi Feza and Louis Moholo) came to London and changed the face of European jazz with their wild inside/outside/folkloric "who cares about the label—no boundaries" approach to music.

The project has been a true Studio 401/Scott family affair under the musical direction of the renowned flautist Chloe Scott and the production team of trumpeter Jody Scott and drummer/ Studio 401 owner Andrew Scott. The CD was mastered by Michael Romanowski and is currently being circulated for label interest.

The foundation tracks were recorded at The Premises in London on an SSL using a range of API and Neve outboard gear, and Royer, Coles and AEA ribbon mics, as well as the ubiquitous Neumann U 87. Additional tracks and overdubs were added at Studio 401 in San Francisco.

The London sessions involved musicians and family members who were most closely connected to and played with Dudu and The Blue Notes, including Dudu's wife, Barbara Pukwana, Hazel Miller (of Ogun Records, widow of Harry Miller, the South African bassist who replaced Johnny Dyani in The Blue Notes), and Veronica Beckett (widow of the iconic trumpeter Harry Beckett). The London musicians included Annie Whitehead (trombone/co-musical director for the London sessions); Harry Beckett and Jody Scott (trumpet); Pierre Dørge and Dave Draper (guitars); Chloe Scott (flute); Nick Stephens (bass), Mark Sanders (drums), and Thomas Dyani (percussion; Johnny's son, currently with Shakira). This was Harry Beckett's last recording session.



Dudu Pukwana

Additional recordings were added to complete the full project using musicians in the SF Bay Area with some creative new arrangements. Also included were a couple of earlier recordings by Kombo Kwela and one by seminal world-beat band The Rhythm-o-matics, engineered by Fred Catero and produced by Bob Johnson.

Studio 401 continues to work in the Bay Area and internationally, recording, mixing and mastering in the studio and on location as well as offering production, live sound and video services.

Lucid Rays at El Cerrito Studio

Produced and engineered by studio owner Oscar Autie, classic rockers Lucid Rays recently recorded their debut album *Hard Time in the City* at El Cerrito Studio.

"*Hard Time in the City* was a very experimental and fun project," says Autie, who also played percussion on tracks 1, 7 and 10. "The idea was to attain classic-rock sounds with a modern twist."

Autie was able to capture a warm sound in the drum set using a Universal Audio 4-710d 4-Channel Tone-Blending Mic Preamp with Dynamics. "I'm not a fan of using EQ when recording; I prefer to use my mic techniques to capture the sound I want to attain,"he says. The song "Another Battle" features the studio's Yamaha C1 Baby Grand Piano. According to Autie, the project was mixed using "Pro Tools and a lot of Universal Audio plug-ins."

L to R: Vic Griffith, drummer; Dave Guglielmana, bass player; Oscar Autie, studio owner/producer/engineer; Asher, lead guitar; TC Morse, vocals and rhythm guitar

SESSIONS: SF BAY AREA

Studio A Control Room at JingleTown

JINGLETOWN, OAKLAND, CALIF.

Reggae-rock band The Expendables worked on an upcoming album in Studio A with producer Gordon Brislawn and engineer Lee Bothwick, where all drums, bass and guitars were tracked live together. The main vocal and backup vocal were then overdubbed live together...The Billie Joe Armstrong and Norah Jones project *Foreverly* was mixed by Chris Dugan in Studio A through the Neve 8068 with minimal processing: GML 8900 on the vocals and a Chandler Zener Limiter on bass and mono drums...Pop/electro band Midi Matilda worked on their debut album in Studio A to be released on Five Seven Music, with Reto Peter engineering and the band producing.

Dr. Dog live at 25th Street Recording

25TH STREET RECORDING, OAKLAND, CALIF.

Renowned singer/drummer/percussionist Sheila E. worked on her album *Icon*, with engineers Raymond McKinley, Sir Mychael Davison, Peter Michael Escovedo and Scott Bergstrom. Sheila E. produced the project, with John Schimpf mastering...Experimental rockers Oxbow cut basics for their new release with producer Joe Chiccarelli, with Scott Bergstrom and Chiccarelli engineering... Rock band Dr. Dog recorded the Pandora Radio Live at 25th Street project with producers Mike Fink and Pandora Radio, and engineers David Lichtenstein, Schimpf, Bergstrom and John Smart.

The Del Sol String Quartet at Skywalker Sound

SKYWALKER SOUND, MARIN COUNTY

December was Bay Area String Quartet month at Skywalker Sound, with Del Sol and Kronos recording albums, produced by Judy Sherman and recorded by Leslie Ann Jones; and Cypress String Quartet, produced by Cecily Ward and recorded by Mark Willsher...The scores for two documentaries—*The Case Against 8* and *Marmato*—were also recorded at Skywalker...Judy Kirschner recorded material for pianist Alexander Sung...Jones produced and mixed *I Am Harvey Milk*, a live recording with composer Andrew Lippa and the SF Gay Men's Chorus.

STS9 at Different Fur Studios

DIFFERENT FUR, SAN FRANCISCO

Different Fur just wrapped up its third installment of the Converse Rubber Tracks Sessions Rubber Tracks Pop-Up. Each two-week Pop-Up gives 10 local artists a day of free studio time with the studio. The most recent Pop-Up has been host to a variety of local artists, including Doe Eye, Swiftumz, Afrolicious...Bob Mould worked on new material with engineer Beau Sorenson (assisted by Nic Pope). Mould also produced...Pope engineered the final mixdown using the studio's Pro Tools HDX system and analog gear on new material for electronic/funk/jazz instrumental band STS9.

Photo: Kyle Hixson

Fantasy Studios D live room

FANTASY STUDIOS, BERKELEY, CALIF.

Dancehall/reggae artist Sean Paul recorded vocals on the new SSL Duality SE in Studio A, with Adam Munoz engineering...Rock band Iggy & the Stooges recorded and mixed *Ready to Die* in Studio D with Jesse Nichols engineering... Funk/rock/soul band Sly & the Family Stone had a full band reunion video shoot and interview for their latest box set in Studio D, with Munoz engineering...Actor Patrick Stewart recorded multiple voiceover projects for TV shows and ads in Studio D, with Alberto Hernandez.

DECIBELLE, SAN FRANCISCO

Folk/rock singer-songwriter Matt Nathanson recorded new material with producers Jake Sinclair and Mike Viola, and engineers Chris Reynolds and JJ Wiesler. Basics were cut to 2-inch tape on a Studer 827 at 15 ips, then transferred to Pro Tools. The band recorded live in the room with Nathanson cutting scratch vocals in the large iso booth using a Neumann U 47 or a Shure SM7. Vocal chain was a Neve 1073 or API 212 into a Universal Audio 1176...Rock/soul/country band Nicki Bluhm and the Gramblers were in the studio with producers Tim Bluhm and Wiesler (Wiesler also engineering).

Coast Recorders Hosts Live Tom Rhodes Session

Photo: Alex Webbles

The Tom Rhodes session at Coast Recorders wasn't your typical recording session—it was more of a live-performance. The idea was that the band would perform the entire album front to back in front of an audience of their friends and peers, capturing the vibe and spontaneity they would get at a show but with the controlled acoustics of the studio environment.

The core band was composed of Tom Rhodes on acoustic guitar, Fender Rhodes and lead vocal; Andrew Laubacher on drums; Oscar Westesson on upright and electric bass; and Rory on acoustic and electric guitars. They were backed up by the three-piece vocal group The Lady Crooners (Nadia, Joseph and Megan Krilanovich) and special guests James DePrato on electric guitar and Tim Marcus on pedal steel. From November 22-25, 2013, the band convened in the afternoon at Coast to work on specific songs, with everyone performing live in the main tracking room. Co-producer and engineer Charlie Wilson would record all of the rehearsals, and by 8:30 p.m. the audience members—made up of local musical peers and friends—would show up, and the performance would begin. The guests were seated on couches dotted around the room, and were all fed their own headphone mix straight off the console so they would get a real hi-fi experience.

"The only things isolated were the guitar amps, which were in the iso booth," says Tom Richardson of Coast Recorders. "Everything else in the room was live, so separation between instruments and singers was a challenge. Tom was playing and singing on a riser, and Charlie used a pair of sE RN17 mics in a mid-side configuration, which proved to have incredible rejection of anything else going on in the room. He sang through a vintage Neumann U 67. Andrew Laubacher's drums were surrounded by four huge gobos in the far corner of the room and were close-miked and also miked from above with Josephson C617 omnis and a stereo AEA R88."

At the end of the four days, the band had amassed numerous takes of each song and began to sift through the best performances. "No overdubs were needed and no fixing of things was done; they relied on having perfect performances," Richardson says.

STUDIO TRILOGY

Recording Oasis in Downtown SF

BY BLAIR JACKSON


Cindy McSherry, business operations manager; Willie Samuels, engineer, co-manager; Justin Lieberman, chief engineer, co-manager.

Located smack dab in the heart of San Francisco's ultra-creative and growing SOMA (South of Market) district, on the edge of downtown, Studio Trilogy is exactly the type of recording and production facility that mirrors the city's changing face as a hub for all sorts of different types of artistic expression. Whereas in the past, some of the "hot" studios in The City have been focused primarily on music recording or commercial production/post work, Studio Trilogy revels in its eclectic approach, offering a one-stop shop for almost any audio project imaginable.

"San Francisco is really vibrant right now," says chief engineer Justin Lieberman, who, with senior engineer Willie Samuels and business operations manager Cindy McSherry, are the trio who run the multi-room complex. "There's a lot of work being done in a number of different creative sectors we're trying to accommodate—from small gaming to large gaming, to rock and jazz and hip-hop, advertising, post work. It's very diversified, but we've figured out a way to make it all work in this space."

"Between the three of us we've had experience in all these different market sectors," adds McSherry. "This was built as a music studio originally, and the rooms were designed with music recording in mind, but as we started to develop Trilogy, beginning in April 2010, we realized there were these other markets out there that needed servicing, so we've been able to accommodate those. For instance, the percentage of post work we do here has grown steadily every year," and now makes up about 30 percent of Studio Trilogy's business.

The facility started life as Talking House Productions in 2006, in a former warehouse space that was transformed by noted studio architect John Storyk, with plenty of input from Jack Leahy (of local Russian Hill Recording and Crescendo Studios fame) and others on the original studio team.

At the heart of the facility is Studio A, with its spacious control room featuring an 80-input SSL 9000K (the only one in Northern California) and bounteous top-of-the-line outboard gear, and a large, wonderful-sounding tracking space that can accommodate everything from small groups to orchestras. Control Room B is anchored by a 32-channel API 1608 console with custom EQs. Then there's the smaller Control C—designed primarily (but not exclusively) for post work, with a 16-fader Avid D Control as its primary work surface. A large assortment of high-end monitors—Genelecs, Dynaudios, Yamahas and others—are matched to each control room. Additionally, there are four iso booths, each of which can be connected to any of the control rooms.

You'd never know it from the nondescript exterior on busy Bryant Street, but the studio also boasts an elegant and well-appointed apartment, lounges, media room, conference room, full kitchen, dining area and more—even a private rooftop patio.

The three principals all have deep roots in Bay Area recording: McSherry worked at Russian Hill and Crescendo before signing on to be director of operations at Talking House when it opened; Lieberman started at Toast Recording, and later worked at Different Fur, SF Soundworks, Fantasy Studio in Berkeley and various other spots in his pre-Talking House days; and Samuels co-founded (and still co-owns) indie favorite Nu-Tone Studios, in the East Bay town of Pittsburg, and arrived at Talking House originally as a freelance engineer and producer.

Studio Trilogy also has what is known in the sports world as a "deep bench"—i.e., a strong and diverse group of creative partners who often work out of the facility, including top-flight music engineers such as Howard Johnston, David Frazer and Tyler Crowder; post engineers Chris Konovaliv, Eric Eckstein, and Matt Wood; and advertising specialist Sam Pond.

It's no wonder there's such a variety of clients coming to Studio Trilogy. "You never know what you're going to be doing," Lieberman notes, "whether it's a voiceover or an eight-piece jazz band or, the other day, a 15-piece string section. Willie is currently working with a local artist, and then we have a British producer and artist staying in the apartment for two weeks. They did some work in the UK, they'll be finishing up vocals in our API room and then I'll be mixing six songs for them in the SSL room."

"This weekend we have a corporate video shoot in our live room and gallery," McSherry adds.

It's quite a juggling act, they acknowledge, "and more than ever," McSherry says, "pre-production is key—really getting the story about what someone needs before they walk in the door, because everyone has different needs nowadays." Lieberman: "Some people know exactly what they're after when they come in, but there are also more novice artists, who need more coaching about being in the studio and maybe even hiring musicians. We have connections with a lot of musicians who can help out on different kinds on projects."

As for the future, McSherry reveals, "We're in the process of launching an original music production division for scoring for film and television, called Track Attic. We've been developing this for the past year, contracting with various composers to produce material to promote this, and we've hired a marketing rep. Our goal is to provide top-level production quality."

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CHRIS DUGAN: FROM NU-TONE TO JINGLETOWN

BY BLAIR JACKSON

It was one of those right place, right time situations. Chris Dugan and his partner, Willie Samuels, had been recording local punk, metal and assorted bands for a couple of years at their Nu-Tone Studio in Pittsburg, Calif. (east of Berkeley/Oakland), when their paths crossed that of the best-known rocker in the area—Billie Joe Armstrong of Green Day. Armstrong had (and still has) his own record label, Adeline Records, and in 1999 he tapped Dugan to come to his home studio to record a few songs for a band he was producing, The Criminals. The resulting album, Burning Flesh and Broken Fingers, delivered 14 blazing punk songs in just 21 minutes, including "An Angry Ouija Board Has Sent Us to Destroy the City of Berkeley." Yeah!

Dugan has been in Green Day's orbit ever since. He and Samuels worked with the band on some songs that came out on the 2002 B-sides/rarities album Shenanigans, and they established a Nu-Tone room in Studio 880 in Oakland, where Green Day often recorded and which the band eventually bought and turned into their own JingleTown facility. Dugan did some recording for American Idiot, and then was chief engineer on 21st Century Breakdown, the group's recent trilogy—Uno! Dos! and Tre!— and the just-released Billie Joe and Norah Jones album, Foreverly (a remake of an old Everly Brothers record). He has also done photography and videography for Green Day. These days, Dugan spends nearly all his time helping run JingleTown, which is now a commercial studio, as well as Green Day's domain. Yet he and Samuels, who now works full time at Studio Trilogy in San Francisco, still own Nu-Tone in Pittsburg—now run by Scott Goodrich and Ben Hirschfield—and still drop by to help out on occasion.

Dugan grew up in the Pittsburg/Antioch area of the East Bay, where he played in bands (he's a drummer) but also was always interested in recording, eventually finding a school. "Los Medanos Community College in Pittsburg has a big music department, and they've also had a recording program for years, with a really nice studio. I was there from 1995-97," he says. That's also where he met Samuels.

The two started Nu-Tone with an eye toward working with the many punk and metal bands who were sprouting up in the area the mid- and late-'90s. "Willie already had a little studio," Dugan says. "I had a Fostex 8-track 1/4-inch reel-to-reel and Willie had the 1/2-inch Tascam version. Then I came across a deal on an ADAT, and I jumped on it. He sold his [Tascam] and he bought two. 'We'll put 'em all together and have 24 tracks!' It was amazing. So that's how it began—we started as a 24-track ADAT studio. Eventually we were able to buy an Otari MX-80 tape machine off Skywalker Ranch, and that changed everything."

At first, their clientele was "mostly friends. Willie was in bands in the [nearby] Concord-Walnut Creek area. I was in bands in the Antioch-Pittsburgh area, so when we teamed up, all of our friends ended up coming in. Of course, a year later half the bands have broken up and the four members of each of those bands have formed four other bands, so it was easy to get work for the studio," he says with a laugh. "It was a cool place, and people seemed to like the vibe. We were really, really cheap at the time, too, which is what brought everyone in."

Asked if he was heavily influenced by the recording aesthetic of Green Day and other punk and rock outfits of that era, Dugan says, "Yes, but I always felt like I looked back at more classic albums and said, 'This is how things should be,' because I figured these were the guys who started it. So when I'd listen to The Beatles, I'd listen carefully because they were being innovative and breaking the mold. Or I'd listen to a Zeppelin record—'That's a room sound?' or, 'How did they get that drum sound?' Now, of course, people can do what they did technically with what's in their bedroom studios. But that's where I would draw from."

And, of course, Green Day has always made really good-sounding records; theirs is hardly a DIY punk sound. "That's right," Dugan says. "It always caught me a little off-guard how good their records sounded. They were really into recording—more so than any band I'd ever recorded. They certainly knew the process and they knew what sounds good, while a lot of the bands I was working with were like, 'Sounds okay to me, can we party now?' By the time I started working with them, they'd been through a lot. But it's been a great experience. They've pushed me a lot—'Can we make this sound better?' 'Um, okay, let's try this.' We experiment a lot, which is really fun." These days, working at JingleTown, Dugan gets to work on top-of-the-line gear, including the SSL 9000J in Studio B and the vintage Neve 8068 that recently went into Studio A.

"From my perspective," he says, "a big part of engineering is all about gear, handling the technical stuff. Back in 1997, Willie and I would look at this Mix magazine on vintage gear and that was like our guideline: 'That's a U 47. That's a Neve module.' We grew up drooling over and trying to figure out all that stuff. And even today, I'll check out new things, of course, but hardware-wise, I'm still more drawn to the classic gear."

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LIGHT RAIL STUDIOS

SF Music Center With High-End Recording

BY TOM KENNY

You can find sound facilities like Light Rail Studios in most major markets, typically in the warehouse district. Affordable lockout reharsal spaces for local bands, sometimes a shooting or concert stage, a facility wired for sound and all types of production, including video. Often there is a recording studio, ranging anywhere from duct-taped wiring to full-on professional. These types of facilities, often unnoticed, occupy a core place in the music and recording industry, exposing countless musicians to their first taste of real technology, but more importantly, serving as a hub where creative musicians, engineers and budding producers first come together and feed off of each other.

Light Rail Studios, in one form or another, has been that kind of place in San Francisco since 1994, when Elton Cunniffe hooked up with a couple of friends in the basement of a three-story Victorian in the Haight district. There was a Tascam 4-track, later a Yamaha PM1000 console, and a bunch of music gear. Their friends were artists and musicians. It was mostly making records and staging events, back then, and the studio would get upgraded and grow over the years as they changed spaces. In late 2010, after building out a 20,000 square-foot space with a live room, control room, two production rooms and 36 rehearsal spaces, they took the name Light Rail Studios.

Being in today's San Francisco, art, high-tech, digital content creation, manipulation, distribution and e-commerce sales are in Light Rails's DNA. But the basis has always been music, with an analog mindset. The recording studio was founded in 1992 and has been central to the operation ever since, from that original Tascam 4-track to the MCI JH600/Otari MTR combo, and on to today, with a Gamble DCX 60 console, with digital control over 60 Class-A inputs, in Studio A.

Cunniffe, a producer/engineer and one of the owners of Light Rail, says that he knew his clientele would appreciate the best of both worlds. "A lot of projects we see today are self-financed by musicians or by their fans, who have already been down the road of trying to record themselves and know the value of recording in a professional studio," he says. "They expect us to find the best-sounding equipment, to have the best-sounding room, and on an engineering/producing level, to work fast and creatively." A friend, engineer Armando Torbinder, recommended the DCX 60.

"Of course I new the name, being from the Bay Area music scene, but had thought of Jim Gamble's mixing boards as more of a live mixing desk than a recording studio console," Cunniffe says. "I had always thought the Euphonix CS2000 to be an interesting desk both in sound and concept, and being designed and built in the Bay Area was a plus. Naturally, I was intrigued by the idea of a hand-built Gamble that was digitally controlled but still an analog mixing console under the hood.

"Initially it was the bus and matrix system that had me excited," he continues. "It was far more expansive than our venerable 600 series MCI desk. But then it became about the sound. We had started mixing in the box with the advent of Pro Tools HD but were increasingly dissatisfied by the sound—but the automation and recall were critically important. The DCX gave the studio the flexibility of total recall of mixes but also allowed us to mix through an analog console. It had the headroom and the summing capability to handle 60-plus channels on the mixdown, and for the first time we were able to integrate our extensive collection of outboard limiters, compressors, reverb plates and effects units.

"A lot of the old gear is noisy and full of color and adds a lot to the recordings, but having the Gamble gives us a large-format analog mixing desk in a small footprint with compression and EQ on every channel—and the ability to save mixes for recall, which is critical when you have a busy studio with multiple engineers and producers working on lots of different projects during the week."

In 2012, Light Rail Studios acquired an original 38-channel Trident A-Range to complement a large collection of Neve, Seimens, Langevin, etc. preamps and outboard gear, an extensive instrument collection, and the Meyer HD-1 monitoring.

Light Rail Studios will continue adding and expanding to accommodate all things audio and to play a part in the San Francsco scene. There are local artists on the walls of the gallery, community-based operas to be written, bands to record and release. "Don't compromise; it's you're art!" Cunniffe concludes. "Your record deserves to sound great!"

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– Chris Lord-Alge

Legendary, five time GRAMMY® Award winning producer/engineer, Chris Lord-Alge, recently adopted Focusrite's RedNet as the cornerstone of his new workflow. Chris' star-studded resume is a veritable who's who of pop icons, including Aerosmith, Green Day, Muse, and Tina Turner to name only a few. For over two decades Chris depended on 48-track tape to interface with his console and array of mostly vintage outboard gear. Confronted with the reality that he will soon need to transition away from tape, Chris tested other D/A convertors and was only willing to "make the change" after hearing RedNet.

"I've trusted Focusrite for my bus limiter," he says, **"and when I heard RedNet against what I think sounds really good I was just really happy. Bottom line, if the sound wasn't there this would not be a discussion. Period."**

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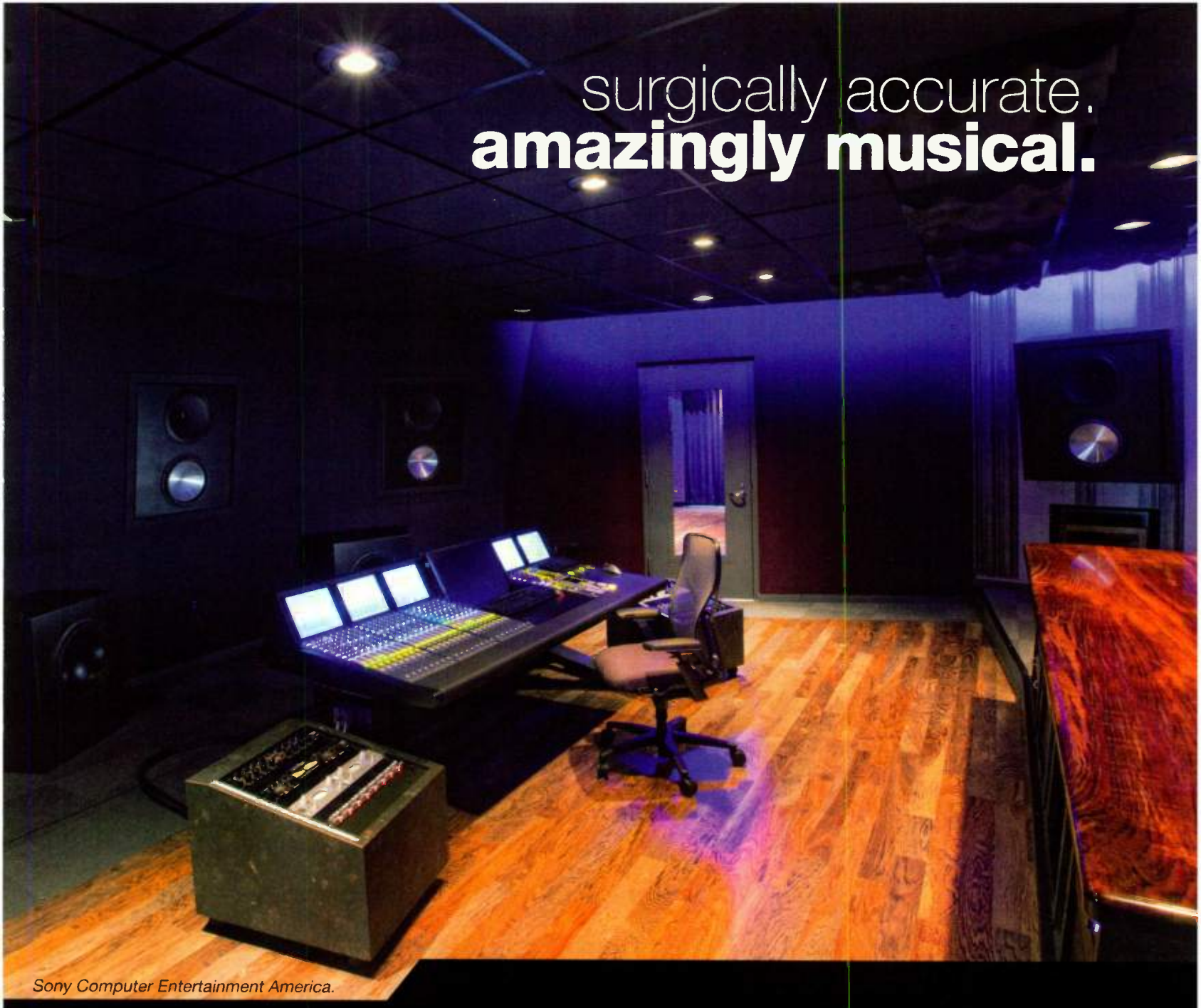
The Model 42LF MKII is intended solely to integrate perfectly with the Model 42 studio monitoring system. This is accomplished by feeding both systems a full range stereo signal, ensuring precise reproduction. The compact, full range Model 42's coaxial drivers gradually lose energy around 65 Hz, while the 42LF's bass enclosure begins to gain energy around 85Hz. This overlap between 65 and 85 Hz allows the units to provide the most natural and accurate low-end extension of any professional playback system.



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Hot out of NAMM and built on the strength of their Auteur preamp is Black Lion's B173 mic pre. The unit pays homage to the Neve 1073 preamp and offers 80 dB of gain, stepped input and variable output gain controls, LED lit phantom power swtich, DI/Mic selector and front-panel 1/4-inch input. The unit comes in a 1RU half rackspace unit and is $449.

PENTODE AUDIO VTC-1

VST Analog-Modeled Crusher

The Pentode VTC-1 ($22.12) offers input gain control, attack and release controls, compression amount control, hard knee/soft knee switches, tube drive amount, output gain control and bypass, plus an analog-modeled meter reading gain reduction. The VTC-1 is available as a demo from the website or purchase through PayPal.

LACHAPELL MODEL 983S PREAMP

Tubes for the Road

LaChapell Audio's Model 983S preamp ($2,400) offers two channels of tube amplification to both studio and road applications. Based on LaChapell's 583S, the 983S comes in a single-rackspace unit and features an ultra-low output impedance for excellent sound transfer across long cable runs; input and output controls; switchable phantom power for each channel; plus pad, polarity and mute switches. Other features include front-panel hi-Z input with auto-switching and low and highpass filters on each channel.

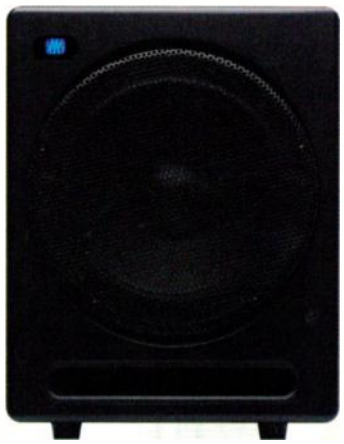
GIK ACOUSTICS FLEXRANGE ABSORBERS

Tunable Bass Traps

FlexRange Technology from GIK uses a proprietary bass trap design that offers customers the option to control the range of absorption. Products include the 244 Bass Trap ($69.99) and Monster Bass Trap ($118.99). The Full Range option is broadband in nature, maximizing low end and upper frequencies, and is intended for tackling early reflection points or when upper frequencies need 100-percent absorption. The second option has a built-in frequency range limiter, which includes a membrane system that promises lower frequency absorption while retaining 75 percent more high end. This option ($15 additional charge per panel) includes a membrane system that improves lower frequency absorption—up to 50 percent more low end (below 60 Hz)—while retaining 75 percent more high end from 400 Hz and above.

PRESONUS TEMBLOR T10 SUB

10-Inch Rumbler



Designed to complement the Eris and Sceptre full-range studio monitors, the PreSonus T10 ($399.95) features a 10-inch glass-composite woofer driven by 250 watts of Class-A/B power; a front-firing, bass-reflex acoustic port; optimized, resonance-suppressing internal bracing; and internal damping and heat sink. Frequency response ranges from 20 Hz to 130 Hz. I/O includes left and right balanced XLR and ¼-inch TRS and unbalanced RCA main inputs, and left and right balanced XLR and ¼-inch TRS outputs, with an extra subwoofer output for connecting a second T10. Controls include input gain, variable lowpass filter and switchable highpass filter.

RØDE NT1 KIT

Redesign Adds Rycote Tech

The RØDE NT1 ($269.99) is a new 1-inch diaphragm condenser microphone completely designed from the ground up. The cardioid condenser mic features a capsule suspended inside the microphone using Rycote's Lyre system, minimizing external vibrations at the component level. The NT1 is quiet, measuring only 4.5 dBA of self-noise and is machined from 6061 aluminum and then nickel-plated for resistance against corrosion. The NT1 comes with the new RØDE SMR shockmount, offering a unique double-Lyre suspension system and removable all-metal pop filter.

GRIFFIN STUDIO CONNECT HD

Affordable, Portable I/O

Billed as "the only device of its kind that records multiple tracks simultaneously to iOS or Mac OS X," the StudioConect HD from Griffin Technology ($199.99) is a simple and affordable docking station/IO that also serves as a charging platform. StudioConnect HD is compatible with both Lightning and 30-pin iPad models and works with Core Audio recording apps along with Mac OS X-based Digital Audio Workstations. Features include: two ¼-inch/XLR combo inputs with gain control, switchable pad and phantom power and Signal/Clip LED indicator, USB MIDI and 5-pin MIDI support, TRS ¼-inch balanced out, plus dedicated monitor and headphone volume controls.

UNIVERSAL AUDIO APOLLO TWIN

Thunderbolt Interface with DSP

Using UAD processing, the Apollo Twin Thunderbolt 2x6 interface features two linkable mic/line preamps, hi-Z instrument input and headphone output. Other features include two digitally controlled analog monitor outputs, eight channels of additional optical inputs and Unison technology offering models of classic tube and transformer-based mic preamps. The Apollo Twin comes in DUO ($699) and QUAD configurations ($899).

CERWIN-VEGA XD POWERED SPEAKERS

Full-Range Desktop Systems

The new XD powered speakers from Cerwin-Vega include a 3-inch XD3 ($199 a pair), 4-inch XD4 ($265 a pair) and 5-inch XD5 ($331.67 a pair) full-range systems and an 8-inch XD8 ($331.67) powered subwoofer. Each XD Series member is matched with low-distortion, high-output amplifiers and soft-dome tweeters. The XD3 and XD4 feature 3/4-inch tweeters, while the XD5 uses a 1-inch tweeter. Front and rear inputs include an 1/8-inch TRS, RCA pair and 1/4-inch TRS pair inputs, as well as a front panel 1/8-inch TRS headphone jack. Additionally, the speakers feature an optimally designed bass port for proper low-frequency phase alignment and minimal turbulence. The XD8 sub offers deep bass extension, and the entire series is built with solid MDF wood enclosures.

RobairReport

EARS WIDE OPEN

By Gino Robair

"In Zen they say: If something is boring after two minutes, try it for four. If still boring, try if for eight, sixteen, thirty-two, and so on. Eventually one discovers that it is not boring at all but very interesting."—John Cage, "Indeterminacy"

The first listening assignment I give my students is to study a piece of music they hate, within a musical style they dislike. I explain that, as engineers, they need to understand how recorded music sounds in all of its manifestations because, at some point in their careers, they're going to have to deal with what they consider to be "bad music" if they want to make a living. It doesn't matter whether they plan to get into recording, mixing or mastering, they had better be prepared for the unknown.

To fulfill the assignment, I ask them to tell me when and where the piece was recorded, how the frequency spectrum is filled, what the overall ambience is like, and so forth. In other words, they have to listen beyond the music itself and hear what is physically going on.

That's when the light bulb appears.

Suddenly, we're talking room tone, instrument balances, vocal placement, dimensionality—basic mix aesthetics. The class begins to forget what they were listening *to* and learns what to listen *for.* By the end of the semester, they are geeking out about reverb in everything they hear, recognizing compression artifacts in their subtlest forms, and approaching sound—not just music—in an analytical way and enjoying the process.

This first exercise is meant to inform my students, who range from beginners to intermediate-level recordists, that they have a lot of listening to do before they can consider themselves professionals. It is also meant to refocus the questions that are usually asked starting with the first day of class: What mic should I buy? What's the best interface? First, you have to know what you're listening for, and then you can figure out what you need in order to hear it. (And you'd better save up your money, because the solutions aren't cheap!)

When I introduce the assignment, I explain that the top engineers in the business often work across a wide variety of musical genres. That surprises most students because they, themselves, often only listen to a few specific types of music. The irony, of course, is that despite having instant access over the Web to nearly every recorded piece of music ever made, the average listener's tastes are becoming increasingly Balkanized. Personalized digital delivery has made it possible to completely shut out music we don't like, to the point where we are increasingly ignorant of the expanding culture around us. But that's where the money is in our profession—gigs that are the result of an ever-diversifying media. Anyone interested in being a long-term professional in the recording business must have a global awareness of music. A good model for this is the career of Quincy Jones.

Because most of my students grew up listening to downloaded files, devoid of nearly all production information, they're only vaguely aware of the various jobs involved in modern music making—producer, arranger, mix engineer, mastering engineer (and my favorite from Tom Waits' *Bone Machine*, "Musical Security Guard"). These people are just as important as the artist in terms of making a successful recording. I tell them to pay attention to the men and women behind the scenes of their favorite releases, and very soon they'll begin to see some of the same names reappearing. Follow their careers, because they will most certainly outlast the talent.

That initial exercise is just the icebreaker for the semester. In the next level, the students are required to listen to a handful of commercials on network television without watching the screen, in order to concentrate solely on the sound. I ask them to describe what they hear technically (the sound of the bass drum, reverb on the voice, where elements sit in the mix), emotionally and professionally (What was the ad agency trying to do? What demographic is it targeted toward?). Answering these types of questions puts additional pieces into place for the budding music/recording professional. And it not only serves as a listening exercise, but it also hones the student's communication skills. For example, when the client says, "The mix needs to feel more orange," a pro should be able to intuit as best he or she can what the client is really asking for, based on all of the cues of the moment. The only way to acquire these chops is through a broad diet of concentrated listening.

Recently, I heard a film critic describe the difficulty of judging movies after being inundated with trailers and PR before actually seeing the work; his expectations and biases where in full force before he even stepped into a theater. He then described the joy of attending a film festival, such as Cannes, where he sits through more films than he can keep track of, which results in having no preconceived notion of what many of them are about. For him, that was the source of greatest discovery—experiencing a work of art with "beginners mind." Therein lies the source of true learning for all of us. To approach every challenge as an opportunity, fully open to the experiences before us so that we can make the most of what they teach us. ■

se•lec•tion [səˈlekSHən]

noun

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2. a number of carefully chosen things

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By Steve La Cerra

SHURE BLX4 WIRELESS SYSTEM

Scalable, Affordable Rig for Mics and Instruments

The BLX Wireless System from Shure was designed to provide a professional level of audio and RF performance at an entry-level cost. Comprising three receivers and two transmitters, the BLX System enables easy setup and offers a choice of bodypack or handheld wireless transmitters. BLX bodypacks may be used with either a ¼-inch instrument cable or a variety of lavalier, headset or clip-on microphones, while the handheld transmitter is available with a choice of capsules including the industry-standard Shure SM58 and Beta 58. Several different BLX receivers are available: the BLX4 (single-channel) and BLX88 (dual-channel) receivers are designed for tabletop operation, and the BLX4R may be rack-mounted. Mix received the BLX4, BLX2 handheld transmitter with a Beta 58 capsule, BLX1 bodypack transmitter and WA302 cable for connecting the BLX1 to a guitar or bass.

CONTROL AND SETUP

Controls on the BLX4 receiver comprise a front panel power switch plus pushbuttons for group and channel tuning. A green ready LED glows when the receiver detects a transmitter operating on a matching RF channel, and a two-color audio LED indicates signal present (green) or overload (red). A two-digit display shows the frequency group and channel of operation. Audio output comes from two rear-panel jacks: an XLR for microphone level output and a ¼-inch TS for instrument level. These outputs are not adjustable. Power is supplied via line-lump power supply (included), and a small cable clamp on the rear panel can be used to secure the power cable and connector from accidental removal.

Similarly, the transmitters are designed for easy operation with few controls: on/off switches, group and channel pushbuttons, and LEDs to indicate RF group and channel. Although the transmitter and receiver LEDs show group letter and channel number, there is no indication of the actual broadcast frequency. The BLX1 bodypack transmitter features a locking TA4 audio input connector, a captive whip antenna and an audio gain control concealed underneath the battery compartment door. Both transmitters require two AA batteries for operation with an estimated life of 14 hours. Operating range is stated as 300 feet line-of-sight, and RF transmission power is 10 milliwatts. The BLX System operates in the UHF band across a wide range of channels. Depending on the geographic region and local RF activity, up to 12 compatible BLX Systems may be used simultaneously.

TRY THIS

The Shure BLX 1 bodypack and BLX2 handheld transmitters can be locked to prevent unwanted channel changes or from being accidentally turned off during a performance. First, locate the group and channel adjustment buttons by opening the transmitter's battery compartment cover. Hold down the group button and press the channel button for two seconds. The LED display will flash rapidly, and the power indicator will blink red. This indicates that all controls have been locked to prevent unwanted changes. To unlock the transmitter, repeat the process. The power indicator will flash green and the LED will blink rapidly, indicating that the transmitter is unlocked. Locking or unlocking the BLX4 receiver is done in a similar manner: press and hold the group and channel buttons simultaneously. The display will flash rapidly to indicate it has been locked.

stand·ard [ˈstan-dərd]

noun

1. an object that is regarded as the usual or most common form of its kind

2. something established by authority, custom, or general consent as a model or example

3. the stuff no studio is complete without

PEARLMAN TM-1

Hand-built, point-to-point wired tube condenser of the highest quality

GEFELL CMV 563 / M7S

One of history's most enduring microphone designs brought back to life

SE/RUPERT NEVE RN17

Incredibly detailed, speedy SDC with large-scale, hand-wound transformer

BLUE KIWI

The quintessential pop/rock diva microphone, featuring the hand-tuned B6 capsule

JOSEPHSON E22S

Unique side-address condenser made to exacting specifications

Setup was easy. The BLX4 receiver has the ability to perform an RF spectrum scan to detect a vacant frequency. Push and release the group button and the BLX4 will start the scan, then automatically set itself to an open frequency. You can also set the frequency manually by pushing and holding the group button to select the group, then doing the same to the channel button to select the frequency. Transmitter channel is set manually by using the group and channel buttons to scroll through options until they match those of the receiver. Our BLX components were the M15 versions, capable of operating in the frequency range between 662 and 686 MHz. Shure offers other options depending on geographic location. If you need to know the specific transmission frequency, you'll need to consult the BLX's Frequency Compatibility Chart, which indicates the exact frequency for a group/channel combination (for example Group A, Channel 3 = 663.700 MHz, etc.).

Gain for the BLX1 bodypack transmitter is set via internal gain control, which accommodated most of the instruments we tried with the system. One exception we encountered was an active bass with a very hot output; even with the gain control down all the way we still heard a slight bit of distortion. Backing off the instrument's volume control a bit solved the problem. The BLX2 handheld transmitter does not feature a gain control, but there is the ability to "pad" the transmitter by -10 dB. This is accomplished by pressing and holding the channel button for approximately five seconds, after which a small dot appears at the lower-right corner of the LED window, indicating the pad has been switched on. This could come in handy if a singer with a very loud voice uses the transmitter, but we never needed it in our trials. One feature of the BLX2 that we really liked is that the transmitter settings and power switch can be locked to prevent accidents (i.e. the talent turns the power off). See the "Try This" sidebar for the procedure.

PRODUCT SUMMARY

COMPANY: Shure Incorporated
PRODUCT: BLX4
WEBSITE: www.shure.com
PRICE: BLX4 Receiver: $159; BLX2 Handheld Transmitter with Beta 58 capsule: $229; BLX1 Bodypack Transmitter: $139; WA302 TA4F to ¼-inch cable: $18.
PROS: Very good sound quality, easy to use, compact, affordable.
CONS: Transmitters and receivers do not indicate actual broadcast frequency. Not intended for heavy touring use.

OUT AND ABOUT

We used the BLX System with the handheld microphone transmitter on a number of stages across the country where there was a fair amount of RF activity: a minimum of four wireless instrument systems, five wireless IEM systems, a few wireless mics and the typical assortment of production RF devices. While we wouldn't call these situations RF nightmares, they were certainly busy enough. The BLX System had no trouble (a) scanning the spectrum to find an open frequency, and (b) maintaining high-quality RF performance without any dropouts, static or hash.

Perhaps more importantly, the microphone sounded like a wired Beta 58—and that's a good thing. The BLX4 receiver easily interfaced with a variety of mixing consoles and set up in minutes. Its tabletop design does not include jacks for antenna (or, for that matter, any external antenna), so most of the time we just plopped it on top of a rack in monitor world. This will be a big strength for gigging musicians who need the ability to get up and running quickly. Although the transmitters feature a low-battery warning, there is no provision for monitoring battery life from the receiver.

Likewise, the BLX1 bodypack performed admirably, delivering stable and consistent RF performance. We were concerned that audio quality might suffer in the low-frequency range when using the BLX1 with a bass (as we have experienced with other wireless systems in a similar price range), but that was not the case. In fact, both transmitters provided clear, clean audio without evidence of background noise or transmission artifacts. We also noticed—or rather, did not notice—any audible effects of companding, no impression of reduced dynamic range, pumping or breathing. While we wouldn't call the BLX1's construction bulletproof, it should easily hold up to medium-duty use.

RECOMMENDED

Shure's BLX Wireless System is a great choice for installed wireless applications such as house of worship, karaoke bars etc., and for gigging performers who handle their own gear. Some of the limitations of the BLX4 receiver are addressed by the BLX4R, which may be rack-mounted, includes provisions for remote and/or distributed antenna, features adjustable audio output level, and has a more comprehensive display panel. Regardless, the BLX Wireless System is easy to set up and easy to use, supports simultaneous use of multiple systems, is reasonably priced and provides excellent audio quality. And that's the bottom line. ■

Steve La Cerra is a New York-based based live sound and recording engineer.

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missed this for 50 years is a really good question. The musicians knew this, but they didn't know how to explain it. They knew it intuitively. One of the big dangers in bringing together science and intuition is that science doesn't believe in intuition. We didn't even consider that this might not be correct.

LOW FREQUENCIES

For a subwoofer to produce a drum sound, it also has to reproduce high frequencies. If you strip everything off at 80 cycles, or 100 cycles, there are only a couple of notes there, so you get sort of a thumpy, pink noise, boom sound. Nothing interesting. To get that crack and the harmonics, you need to get up to 1,000 cycles. All subwoofers were tested this way through sub shootouts; everybody was doing it this way.

What we wanted to do is introduce a low-frequency element that was optimized, had no harmonics and stops at 80 cycles. The broader range a subwoofer has to work, the more it becomes like a speaker, and you lose power. In order to make the thing more powerful, we don't want it reproducing the harmonics that either came from the drum or producing them on their own.

So we introduced the 1100, just a low-frequency element. If you're miking a drum, the highs would go to LEO [linear line array] and the lows would go the 1100, integrated into the system. If you don't strip out the high frequencies, then it's not going to sound very good. If you send a sub feed that's been stripped to 80 Hz, and that's your sub feed, it's not going to have any high end. Mixers immediately want to put a high end with that sub. But what you want to do is take that stuff you just stripped out and send it to LEO. We took this out to the industry in the last year. It's very powerful. It can be very simple, but it's a new way of thinking.

LEO and LYON

Trying to introduce [the concept of linear sound] 10 years ago would have been difficult. It was easier in cinema because they had more to gain. They have a fixed system behind the screen. They can't change it out like P.A. people can.

So LEO was first. We thought we would start off with something for the big shows because there are a limited number of them. It doesn't become a major introduction. Instead we created a collaborator program to work with people and introduce the concept to make sure they understood what it was we were trying to accomplish with this system. It's now been out since 2012.

Then we thought we could build a system for smaller shows, from 2,000 seats to maybe 10,000. Something more flexible. It wouldn't be as powerful, but it would have all the same properties. All the quality is the same, the resolution is the same. These two systems could work well together. You have LEO for the mains and you can use LYONs on the side. Then use the other half of the LEO for you other system and finish it off with LYON. ■

FOCUSRITE RED 1 500 SERIES PREAMP

Vertical Unit Brings Legacy Topology and Sonics

In a way, the Focusrite Red 1 500 Series Mic Pre is the modern return of the microphone preamp design and sound used in the original Focusrite Red Range line of 2U processors. The Red 1 Quad Mic-Pre, Red 6 Mono Mic-Pre Equalizer, Red 7 Mono Mic-Pre & Dynamics and the Red 8 Dual Mic-Pre variants all used that same preamp circuit topology. The Red Range was first released in 1992 and then discontinued in 2010, but its lineage goes back to the mid-1980s with the Focusrite ISA 110 Mono Mic-Pre & Equalizer. The vertically mounted ISA 110 was a Rupert Neve design from being commissioned to supply 16 extra inputs for a Neve console at AIR Studios in London.

LET'S GET VERTICAL

The Red 1 500 Series module fits standard lunchbox racks as a single-rack-space unit housed in an all-steel, clam shell-style, shielded enclosure. Internal construction is first class, with surface mount components on thick circuit boards.

The Red 1 uses an internal steel frame to support three circuit boards: the main circuit board; a second board with a miniature backlit Nissei VU meter and 12-position Grayhill gold-plated, military-grade, rotary gain switch; and a third that holds the ISA-style lighted polarity flip and phantom on/off push buttons. The three boards connect to each other using high-grade interconnecting cables (not ribbon) and sockets.

The gain control shaft is topped with a machined aluminum knob. The knob, plus both switches and VU meter, are recessed and seen through chamfered holes made in the red anodized aluminum front panel. This presentation stays true to form of the original Red Range rack units.

There are also two, three-terminal voltage regulators on the main board that down-regulate the 500 rack's ±16-volt rails and also filter out any possible high-frequency switch mode noise that might come from the power supply. The Red 1 500's nominal slot current drain is 150mA for the +16-volt rail and 90mA for the -16volt rail—well within VPR spec.

A LOOK INSIDE

The mic input and output transformers are a big part of the sound of the original Focusrite Red mic preamp. Like the original's design, the Red 1 500 uses a shared gain structure with the Lundahl input transformer offering 14 dB of gain, the Carnhill output transformer

TRY THIS

An old trick is to connect line level sources to mic preamps and purposely distort with excessive gain. I fed a line level signal from my HD interface into an inline XLR -15dB T-pad and connected that to the input XLR on the Red 1 500 mic pre. I experimented with reducing the Red 1's output with another pad but found it was easier to put the Trim plug-in on the aux input fader back in Pro Tools that received the pre's output signal. I would "juggle" preamp gain setting with the Trim plug-in fader and found this adds "hair" to drum loops, DI guitar and bass, and also super-clean guitar solos.

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giving 6dB of gain and the active amplifier circuit giving the remaining 40 dB. A Zobel input network (specifically configured for the ISA design by Rupert Neve) and the identical dual-primary Lundahl LL1538 mic input transformer are used. The input impedance is 1,200 ohms.

The same Carnhill bifilar-wound toroidal output transformer is used—just made to fit the size-constraints of a single-slot 500 Series module. With its leads directly soldered to the main circuit board, this large transformer (which looks more like a power supply transformer) is bolted to the steel enclosure's wall and dominates the interior of the Red 1 500 module.

The Red 1 500 has 12 fixed preamp-gain settings in 6dB steps from -6 to +60 dB. There is no variable output level control or switchable highpass filter. On the rear of the module is a slide switch that pads the meter's 0VU = +4dB calibration by 6 dB. When engaged, it minimizes excessive needle pinning with the up to +25.5 dBu output level possible.

The Red 1 500 uses 5532 and 5534 op amps, the same as in the original unit, and a discrete transistorized Class-A/B amplifier drives the output transformer.

IN THE STUDIO

I plugged the Red 1 500 module into my six-slot, 500 6B API Lunchbox. I left the VU attenuator switch in the -6dB position for all tests. I used either Pro Tools 10 HD or 11 HDX, 24-bit/88.2kHz, and standard -18dBu (18 dB headroom) I/O reference set up on my Avid interface. I liked the mini VU as a sort of signal present indicator, but a peak indicator LED would be helpful for spotting a problem from across the control room.

For my first test, I used a mic splitter box with a Jensen JT-MB-E transformer inside to route a single drum mic to both the Red 1 and another mic pre at the same time. My splitter presents the same 150-ohm source impedance to all connected preamps.

I started with a 22-inch DW kick drum and placed a Shure Beta 52 in the hole aimed at the beater head. I compare the Red 1 500 set to 30dB of gain to my go-to mic pre, a 2-channel RTZ Professional 9762 Dual-Combo—a high-end remake of the Class-A Neve 1272. The RTZ was also set to 30dB. The Red 1 had a clear sound with good attack while the RTZ had less attack and was rounder and (by comparison) muddy sounding.

PRODUCT SUMMARY

COMPANY: Focusrite Novation
PRODUCT: Red1 500 Mic Pre
WEB: focusrite.com
PRICE: $999
PROS: Super-clean gain. Easily recallable. Built like a Bentley GT Speed.
CONS: Could use a peak LED.

Later I tried an AKG D112 in the exact same position and reduced the gain for both preamps because of the higher-output microphone. For the mid-tempo track, the AKG was a better choice on this particular kick drum. I got more subsonic energy and midrange "cut," but again, it was a close call between the two, with the Red 1 offering a clarity that was missing from the RTZ. My temptation was to clean up the RTZ's sound with EQ, whereas the Red 1 was good to go.

With the same preamps and splitter, I used a Sennheiser MD 421-II close in to record rack and floor toms. In this case, there was no difference in the sound—both preamps sounded great. But the floor tom through the RTZ had less attack and was thicker, while the Red 1 500 was slightly thin. Gain was set to 25 to 30 dB for both.

For recording the drummer's Ludwig Black Beauty snare, I used the same splitter rig but switched from the RTZ over to the studio's API 1608 console mic pre. I placed a Shure SM57 in my usual starting mic position—inches away and aimed directly at the center of the head.

The API 1608 mic pre was set at minimum gain and without the 20dB pad. It sounded fine, although the console fader's position was down closer to the bottom of its range and a bit touchy to adjust and work with. Switching in the pad allowed for more fader travel and adjustability but didn't improve the sound.

To obtain the same recording level, I used 24 to 30 dB of gain on the Red 1, and the sound was fat, full and noticeably thicker than the API. I found the 6dB stepped-gain increments worked great to get any recording level. Later, I put a Neumann KM184 in the same position on the snare, and it sounded like it should with the Red 1 dialed down to only 6dB of gain. The API pre required the pad and sounded somewhat compressed by comparison.

I found it a big plus to not use an attenuator pad and be able to dial mic gain on the Red 1 500 down to (essentially) line level to handle modern, high-output condenser microphones placed close to loud sound sources.

VOCALS, GUITAR

Next was a male lead vocal recording session, and I chose a Neumann M 149 condenser set to cardioid. With the singer about a foot away from the pop screen, the high output of this mic only required about 18dB gain on the Red 1. For louder singing, I clicked one notch down to 12 dB. Whatever gain was required, the sound was superb, with good detail in my singer's voice, the effect of the room's sound, and his positioning in and around the mic—changes that were all easily heard.

For quieter vocals, I switched to 30 dB of gain. I found it convenient to quickly return to the lower gain setting if needed and at the same time maintain the "ballpark" amount of compression from the following UA 1176LN Peak Limiter. I also found the 1176LN's grit nicely complemented the generally smooth and clean tone of the Red 1 500 and M 149 combination.

Next I recorded an Alvarez AJ60S acoustic guitar with a Gauge Precision ECM-84 small-diaphragm cardioid condenser without using the pad or roll-off. For rhythm strumming, 24dB of gain was all I needed when about six inches over the 12-fret or about 36 dB when I pulled the mic back two feet from over the sound hole. Subtle changes in mic positioning are easy to hear using this preamp and mic combination, and I found the sound to be honest—realistic and lush sounding with excellent dynamic range, not overly bright or excessively boomy. Mix-ready.

If you missed the Red Range Red 1 the first time around, the Red 1 500—with its high build quality, classy looks, and clarity of sound—will provide a great introduction to the Focusrite sound. For me it's an '80s flashback in a good way and I highly recommend it as a great addition to any 500 rack! ■

Barry Rudolph is an L.A.-based recording engineer. Visit him at www.barryrudolphcom.

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In capturing that feeling, you're a Logic guy in a Pro Tools world. Usually we think of Logic for writers and arrangers.

My first DAW was Pro Tools. I learned all about Pro Tools and got really fast on it. And sometimes I still use it, but Logic is my preference. What happened with me is, I realized I was having a lot of workflow problems with Pro Tools. Syncing problems when using external hardware like the MPC, and I just felt like I wasn't making recordings sound great in it. It's a great blank canvas, and it could be that my own skills were limited at the time. But however it came to pass, I was frustrated. I was talking to Toby Gad, another songwriter/producer, and he said, "Why don't you try Logic? Give it a week, try a song on it, you won't turn back." This was back in 2007. I took my time learning, and I realized in short order that there are a lot of benefits to it. As somebody who creates and records music, it was a better one-stop-shop for me. And the stock plug-ins that come with it are better. There's a learning curve to it. It's like being bilingual, you have to learn a completely different language. But if you take the time to really learn it, you are rewarded.

Now a lot of people are creating in Logic, then bouncing tracks out into Pro Tools for people to finish, record vocals. But I don't see any point in doing that. You can do that just as well in Logic and keep it all together. I recorded and mixed the whole John Legend album completely in Logic.

What's your front end like?

I use Neve a lot, Neve pre's, I have a Universal Audio 610 preamp I like a lot for the tube stuff, an 1176. I love TubeTech compressors and EQs—they're modern vintage gear. I also love the sound of tape. The records I love so much are from the '60s and '70s, those recordings have so much character. Where does that come from? Well, it comes from the tape, the way you hit the tape, it's coming off of the console—Neve, EMI, Trident, Helios—they all have their little characteristics. It's coming from the microphones, from the instruments. The point is, by the time you get all the way through to recording on the multitrack, running it back into consoles, mixing to another ¼- or ½-inch reel, then pressing for vinyl, you've got a lot of the medium imparting character. We don't have any of that now. DAWs as a medium do not really impart a character on the sound, so we have to add it. That's the key. That's where I feel I've gotten good at it over the past 5 to 10 years. I got much better at knowing how to add that character. I like tape machines that add a lot of character. I don't want it too clean from the tape machine. And it's not just about having the tape machine; it's also knowing how to hit it.

With a real tape machine, I'll take a signal—and I did this a lot on this last John Legend album—and I'll record it direct into Logic. And then I'll also record it to tape at the same time. And I'll monitor it from the repro head, make sure I'm getting the sound we want, and then I'll record that through. But as we're recording, we're monitoring the digital signal because the tape will have a latency from the tape head to the converter and going back in. Once I get both recorded, if you look at the waveforms, the tape signal is a little bit behind because of the latency, so then I just use the digital signal as a waveform reference, and I manually move the tape track and line it up to the digital. It's basically a manual version of CLASP.

You've worked with huge artists like Kanye, Justin and John Legend, but you also work with lesser-known, up-and-coming talent. Can you tell me about your production approach to both?

I like working with a mixture of new artists and marquee artists. The fun thing with new artists is you have an opportunity to bring something fresh and new to the table, and help somebody come out to the world. Generally speaking, new artists tend to be a little more insecure than more mature ones. Being a producer isn't about making great beats or arrangements, it's really about the art of psychology. [*Laughs.*] You have to find a way to build trust with a new artist—with any artist, for that matter—but particularly with a new artist. Get them to drop their guard, get them to know that you've got their back, that you're gonna go through this process with them. And while you're trying to get them to let their guard down, you also have to hold their feet to the fire. If things aren't good enough, you gotta make them do better. Sometimes that might be a tough pill to swallow.

Who are you working with now?

I did a song for Kimbra's new album. Kimbra is the artist who worked on Gotye's "Somebody That I Used to Know." I just produced a song with Ella Eyre from the UK, who worked with Rudimental. I'm getting ready to start an EP with a new artist from Toronto named Kai, writing and producing. She's a young pop artist with a cool, soulful sensibility. Kind of like Lorde a little bit, but she does her own thing. She writes, she was featured on the Diplo track "Revolution." She's got a great voice. ■

NEW YORK NOW

Since moving to Manhattan in 2009, and opening his own Night Fox Studios, Tozer has had a front-row seat to the rapid changes in how records are made in New York City. The recording studio landscape has changed dramatically, with some of the world's finest commercial facilities closing their doors. At the same time, he's seen first-hand the rise of Brooklyn, the re-birth of a local music scene, and the settling in of some familiar recording studio favorites–including a couple that he tends to record in most often: Electric Lady, host of this month's cover shoot, and Germano Studios, where he likes to work out the Ampex ATR-102 ½-inch tape machine.

Photo: Michael Vecchio

Tozer, left, and Troy Germano in Germano Studios Studio A.

"New York is fantastic," Tozer says. "I love it here. I love living here, and the scene is great. A lot of people will tell you the studio scene here isn't what it once was, and that's true to a certain degree with a lot of bigger rooms closing down, but I think the studio and musician scene here is vibrant. There are a lot of rooms in Brooklyn, and there are a lot of rooms in Manhattan.

"But the great thing is you don't need big rooms all the time now," he continues. "It can be a mix between bigger rooms and project rooms. I'll work at Germano, I'll work at Electric Lady, I'll work in my own studio for a variety of things. Outside of my own room, Germano is my favorite studio to record in, and though I love the rooms, gear and service, the main thing about Germano Studios is Troy. He is world-class. Because he has such great history and experience, working with his father, Eddie Germano, with the Hit Factory franchise, he really knows the studio culture so well, and it trickles down to how well he trains his staff, and how well he maintains his relationships with artists & producers. And although his studio has classic gear, he knows how to keep a studio looking forward,which I think is reflected in his ability to thrive as a studio owner in Manhattan, when other on his level have struggled. He's a great friend of mine. He's not just some guy who runs a studio. He loves this shit!"

PRODUCT *SUMMARY*

COMPANY: Rupert Neve Designs
PRODUCT: Portico 511 Preamp
WEBSITE: rupertneve.com
PRICE: $545
PROS: Rupert Neve's design. The quiet Silk texture adds rich harmonic content. Great price.
CONS: No ¼-inch input. No input pad.

highpass filter to roll off some of the rumble.

After the first pass, we laid down double to fatten up the guitar part. On the second pass, I engaged the Silk button and went at the signal aggressively. The Silk texture brought the midrange and upper midrange forward significantly, and created a bit more edge to the second track. I applied the same technique to the solo but rolled the highpass up even further. Again, the Silk texture aided in getting the solo out front and smoothed out the tone coming off the amp. I was not having to work hard at all to achieve killer guitar sounds with no EQ, and was really loving what the Silk was adding.

CONTRAST AND COMPARE

Over the next few weeks I tried the 511s on a variety of sources with great results. Having them in a 500 Series rack made it easy to get what I was looking for, as I typically like to have a Neve-type pre everywhere I work. The 511s worked well on loud sources like drums and electric guitars, as well as on acoustic guitar and quiet vocal passes. I was recording a delicate high-string acoustic and found my Vintech v73i a bit too noisy for how soft the incoming signal was. I patched in the 511, and the guitar player immediately commented on how he couldn't hear the pre in his headphones any longer.

I wanted to track some direct bass for a TV commercial project, and wished that the 511 had a ¼-inch input on the front panel for easy access, and possibly a mic/line button. I know that space is limited inside the pre, and I ended up using a turnaround to interface the XLR input on the back. The bass had plenty of bottom and I ended up pushing the pre a bit harder to get the bass to sit in nicely with the drums.

I had done a few comparisons to the other Class-A and tube pre's in my studio, and then wanted to try the 511s against some other Neve-type clones. I chose the Avedis MA5s preamps for my overheads, as I like the way they react with a pair of Mojave MA200 tube mics or the Royer SF12 stereo ribbon. The 511s were similar to the MA5s, but I preferred having the highpass filter and onboard metering of the 511s. Although RND preamps go from -6db to 72dB, and can take a full +26dB before clipping, the drummer was quite the hitter, so I found myself wanting a pad on the 511s, but ended up putting a -10dB pad on the mic lines.

Adding the Silk really brought out the transients in the overall kit and created a full overall picture without any other mics engaged. The 511s fared equally as well on kick, snare and toms when auditioned against a set of Daking preamps. The upright piano and the 511s became fast friends with a set of Coles 4038s. A Hammond B3 also shined through the 511s with a pair of Mojave MA301 FETs. I set the mics in figure-8, opened up the Silk knob, and the room became an important part of the take, adding vibe without being intrusive. The 511 on a vocal with a Sony C-800G tube mic gave a balance to the vocalist's higher range while enhancing his lower register. This was a great choice for rock vocalists as it handles louder and gritty voices really well.

TRIED AND TRUE

The more time I spent with the Rupert Neve Designs Portico 511 preamps, the more I enjoyed listening to them. I want a pair. The entire package is expertly thought through from an internal design perspective, and the front panel is super-clean and easy to use. Sonically, the 511 sounds great on nearly anything you put through it, working equally well with loud and soft sources. The Silk texture takes you closer to Neve's vintage designs so you're able to achieve the best of modern and classic approaches.

There are many imitators, but there is only one Rupert Neve, and my love for his signature sound has never dwindled. I'm glad to see that Mr. Neve is still trying to improve on his own ideas, and I certainly look forward to hearing what comes next. ■

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

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By Brandon Hickey

APOGEE QUARTET AND ONE AUDIO INTERFACES

USB Audio I/O for iPad and Mac

When it comes to digital audio hardware, there seem to be two different classes: devices offering the most connections, features and best possible sample rates for the most affordable price, and hardware that shoots for the highest possible sound quality regardless of the resulting price. Apogee has always embraced the latter approach, taking great care to consider every component's role, from clocking, to converters, to power supply, and the quality and cleanliness of the analog portion of D/A and A/D converters.

Apogee's Quartet offers a range of features and recording possibilities for portable and mobile use.

With the introduction of the original Duet interface, Apogee announced its presence to musicians and home recordists. Since then, the company has extended its line to include the One and the Quartet, offering varying amounts of I/O and catering to engineers working on a smaller scale without sacrificing sound quality. The latest development has been a push into a whole new market, which has seen a surprisingly small amount of attention from hardware manufacturers: iOS compatibility. With the latest firmware update, Quartet is now iOS compatible, and a brand new incarnation of One has been developed that can also connect to directly to iPhones, iPods and iPads with no extra connection kit.

QUARTET

The Quartet is a compact, multi-function audio interface that sits stylishly on a desktop. The build quality is impressive, with a chassis made of steel and aluminum. While the back panel is packed with connectors, the ergonomically angled top surface is clean, simple and stylish, presenting only the essential controls. Besides the miniature USB connector for connecting Quartet to a Mac, PC or iOS device, the back panel includes a USB port designed to allow a MIDI device to be chained through the unit to the host device. When using Quartet with Pro Tools on a MacBook Pro, one USB slot is eaten up by an iLok, so the ability to connect the Quartet and a MIDI keyboard through the remaining port is very handy. Considering that iOS devices either have a single 30-pin connector, or a lightning port, this becomes an even bigger plus.

Audio connections include four XLR/TRS combo input jacks that can accept mic signals (while optionally providing phantom power), line-level signals, or instruments. Six balanced ¼-inch TRS output jacks can be configured for a variety of uses, outputting either +4 dBu or -10 dBv. Two digital Toslink input jacks, allow up to eight channels of ADAT input even at 96 kHz, using SMUX. A word clock output is provided in order to use the high-quality Apogee clock to sync the digital source that is feeding the optical input. There is also a ¼-inch TRS headphone jack on the side. Altogether, it has 12 inputs and six outputs, plus the stereo headphone output.

The only other connector on the back is the jack for the power supply. The power supply is absolutely necessary, as the Quartet cannot be USB bus-powered by iOS devices or computers. USB power can be unpredictable, and Apogee certainly knows that, but I found this a little disappointing considering that one of the biggest draws of iOS-based recording would be extreme portability. So you can't really use this setup for recording sound effects in the field, or for Alan Lomax-style prison recordings, but it will charge your iOS device while connected.

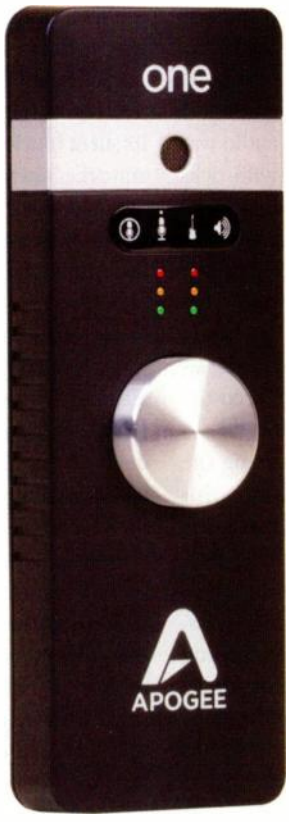
The top surface features a large, multi-function knob common to all of the smaller Apogee interfaces. On the left are four large meters corresponding to each of the four analog inputs, and above each one is an icon indicating whether it is set to mic, line or instrument mode. Pressing any of the four numbered touchscreen

buttons below the meters will appropriate the multi-function knob to control that channel's input gain. To the right of that are three stereo output meters and a meter displaying the signal feeding the headphone jack. Buttons below these meters allow the large knob to control headphone output level or speaker output level. Above the knob are three buttons labeled A, B and C. The included Maestro software controls these buttons' functions, as well as a good deal of the unit's other functionality.

MAESTRO

Quartet will plug and play, and work with the CoreAudio driver on a Mac without installing any software. You can even control most of the basic functions of the unit using the front panel controls. However, to maximize Quartet's full potential, Maestro software is necessary. Maestro provides predictable, basic features like choosing output level or engaging Apogee's signature Soft Limit function, which rounds off the tips of transients that would otherwise clip. Besides the basics, there is a real wealth of flexibility and customization that I've found absent in similar products' software control panels.

The six analog outputs can be used in so many different ways. They can be used to feed six separate outputs from your recording software to six separate inputs of an analog mixer, in their most basic configuration. Along with the main output mix, the Maestro software provides two additional optional software mixers. Each can create a balance of any or all of the zero-latency input signals plus one of eight stereo software returns. With that, an artist's mix can be built using DAW sends to software returns 7-8, for example, plus the artist can hear a zero-latency version of the vocal performance; this can all be mixed in Maestro Mixer 1. That mix can be routed to the headphone jack. Meanwhile, the engineer can build a mix with DAW sends to software return 1-2 and include the post-conversion vocal with plug-ins on the track. That mix can be fed to physical outputs 1-2, which are feeding a pair of monitors.



Apogee's One seems to be a more affordable version of the company's Duet interface.

Alternatively, the three pairs of outputs could be connected to three different pairs of monitors, each being fed the same mix, so the Quartet can act as a monitor controller. The A, B and C buttons can be mapped to each of the speaker pairs, so that A/B/C'ing the mix across different types of monitors is relatively simple. Yet another possibility is to group all six outputs into a 5.1 set and control the overall level of the surround mix feeding your 5.1 monitor setup with the big knob. With that, the A, B and C buttons can be repurposed to become dim, mute and mono sum buttons. The functionality of those three buttons is individually customizable, with all functions being offered along with things like clearing meter peaks, and a variety of toggling and muting functions. Whether you are using the Quartet for tracking, editing sound or video with 5.1 audio, or mixing, the ability to map the most commonly used functions is both comfortable and convenient. My only complaint is that engaging and disengaging phantom power always required a trip to Maestro, never from the surface itself.

ONE

While Quartet is like a more powerful, expanded version of the popular Duet, the One seems to be a more affordable version of Duet. While Duet provides two mic preamplifiers for 2-channel recording, as the name suggests, One provides one mic pre. While recording one miked signal, the One can also record an instrument simultaneously. The input situation gets slightly confusing when considering the fact that the One also has a built-in condenser microphone. This begs the question, "Can I use the built-in mic, plus the mic pre and an instrument?" The answer is not only "no," but it seems that the built-in mic uses the mic preamp, so you can't use the built-in mic plus another microphone. The only 2-channel combination is instrument plus either the built-in mic or an external mic. Considering that the device is called One, that's still one more input than I was expecting.

The One is very small and portable, only slightly larger than what you might call "pocket-sized." The build is well above average. From the pictures, I assumed it was plastic, but I was surprised to find a sturdy aluminum chassis with a plastic and rugged rubber-backed panel. The top features a single multi-function knob, which also serves as a button. The top panel also shows four icons representing the built-in mic, an external mic, an external instrument and the headphone output jack. Below the mic and instrument icons are three-segment LED input meters. Pressing the knob/button toggles between lighting each of the four icons and chooses which feature the knob will control. This way, input gain can be adjusted, or the output level feeding the ⅛-inch headphone jack can be altered as well.

PORTABILITY

The One is powered by a pair of AA batteries. With that, an iPhone and a One will have you recording your music wherever you go. A mono input might be slightly less than desirable for sound effects recording, but the ability to record guitar plus voice with high-quality preamps and converters, wherever inspiration might strike, could save many creative ideas otherwise lost forever. I initially tried a pair of rechargeable NiMH batteries, but they seemed to under-power the One. A pair of full 1.5-volt alkaline batteries did the job, but when using phantom power, it seemed that the life was predictably short. I killed a few pairs before switching to the included power supply, which, like the Quartet's power supply, passed power through to the iPad to which it was connected.

The only thing that makes the One a little clunky is similar to what many users had experienced with the Duet. The unit itself is too small for an XLR jack to exist anywhere on its body, so all the I/O breaks out from a small connector on the One to a pigtail snake. The snake, in this case, has a female TS connector and a female XLR connector for mic and instrument connections. The One comes with a mounting harness to attach itself to a mic stand when using the built-in mic. When setting the One up this way, dangling heavy cables from the breakout connector creates a lot of stress.

IN USE

Using the Quartet on a Mac running Pro Tools or PreSonus Studio One was everything I expected it to be. There were no issues and the hardware played nicely with the software. Recording a performer singing and playing acoustic guitar in the same room with me, I could build a headphone mix for the artist using the Quartet's headphone out. I used a pair of analog outputs to feed my own mix to my Dangerous Source, which allowed me to monitor with headphones while recording and then easily play my own mix through monitors during playback and rough mixing.

As expected, the preamps and converters sounded great. Naturally, everyone has their own opinions about converters, but for me the sound of Apogee converters pairs really nicely with acoustic instruments. The preamps and converters in the Quartet don't sound like a cheap circuit with the Apogee name; they have that Apogee sound. Rather than just being honest and transparent, it would be fairer to say that nothing is lost, but they do seem to add a little sparkle to the top end. When capturing the subtleties of the creaks and finger drags and the little details that make an acoustic performance feel real, the preamps of the Quartet and the One leave nothing to be desired. The same could be said about the way they record vocals. With all the breath and humanity that they preserve, the recorded performance is really true to itself.

The real test, though, was to see how well they played with iOS devices. When it comes to the iPad, the possibilities for doing serious recording are limited by the small number of apps that have been developed for the iPad to date. I spent some time with the One and Quartet feeding GarageBand for iPad, but was most impressed with the potential when working with Auria from WaveMachine Labs. Auria seems to be the most powerful DAW currently available for iOS, offering up to 48 tracks of playback and up to 24 tracks of simultaneous recording. While there are only a limited number of plugins currently available, the basic channel strip and reverb were enough to get things started, and with automation, MTC and MMC compatibility, this app is more serious than anything that I expected to find running on an iPad.

Integration with the Quartet or One was a snap. Auria immediately recognized whichever piece of hardware was connected without the need to enter any kind of "playback engine" style menu. The inputs and outputs were mapped by default, but rerouting them was simple enough, if necessary, using a familiar staircase-like grid mapping matrix.

PRODUCT *SUMMARY*

COMPANY: Apogee
PRODUCT: Quartet; One
WEBSITE: apogeedigital.com
PRICES: Quartet $1,395 (street); One $349 (street)
PROS: Great-sounding preamps and converters. Solid build quality.
CONS: No USB bus powering; power supply is required.

At first, I recorded an acoustic guitar with two mics, a singer and a harmonica. On this simple session, even when recording four inputs simultaneously, I was able to keep the input buffer small enough that latency wasn't really an issue, so dealing with the Maestro mixer wasn't really necessary. I tried making a large session with the maximum number of tracks just to see what would happen, and in that case, a maximum buffer setting was necessary for playback without errors. With that session, I experienced an issue repeatedly when leaving Auria to adjust settings in Maestro. When I would return to Auria, it seemed like there was a clocking error where audio was grainy and distorted and played back with ticks and pops. Quitting and restarting would resolve the problem, but it would soon return if I bounced back and forth between apps. By reducing the track count to 12, I rid the system of this problem entirely. It's hard to say whether it was Auria, Maestro, or the hardware that was to blame, although it's worth noting that I experienced the same issue with the Quartet and the One.

This same thing happened when using the One with GarageBand. I had my guitar connected to their virtual amplifier and everything would be working, but the wrong combination of switching between windows would cause that same grainy sound, and clicks and pops. After using the system for a while and keeping my track counts in Auria conservative, those problems went away and it was smooth sailing from there. I was able to track, overdub and do minor edits with comfort and ease. I really got to like the simple setup and found myself favoring the iPad setup over a laptop for most simple tracking sessions while it was around.

I look back at my experience tracking, and I would say that Apogee has successfully created a great-sounding solution for recording with an iPad. The one question that remains, however, is what is the significance of this? There are already high-end field recorders that can capture quality sound with great portability. One shortcoming of those devices, from a musical perspective, is that without the type of graphics you get from the edit window of a DAW, overdubbing and finding punch points is a bit tedious. So, clearly the idea was to create a portable solution with a great front end and an accurate back end with the visual feedback of a DAW. Despite the Quartet's need to be connected to power, the whole setup can pack up and travel pretty easily, so I would say thumbs up there. Despite that, with Auria in its infancy, it's hard to imagine taking a project from start to finish within the iPad environment, so doing away with your laptop or computer and using the iPad exclusively seems like a stretch.

Perhaps the greatest benefits, though, are ones that are easy to overlook. I've been in many situations where I've recorded music or sound effects in the same room as the computer that is capturing the sound. Computer fan noise is constantly an issue. On top of that, spacebar and mouse clicks have found a way into many a recording. The iPad eliminates both of these problems with its silent touchscreen and lack of fans. I can't overstate the how valuable this silence can be.

IS IT A HIT?

In general, the Quartet is a rock-solid music creation station. It's serious, professional, looks fantastic and sounds even better. The features are just right, no frivolity. The iOS bonus just made it that much better. Besides that, if you're a singer, guitarist, or any kind of solo musician who wonders why your recordings sound dull and muddy, wake up your music with the One. Its one quality input channel can certainly be a better buy than wasting money on eight mediocre ones.

The Apogee iOS-compatible devices are truly designed for straightaway iOS connection. While the Apogee line isn't necessarily the first or only way to connect a quality interface to an iOS device, if you go with these products, you will certainly not be disappointed by their overall performance and sound. ■

Brandon Hickey as an independent audio engineer and educator.

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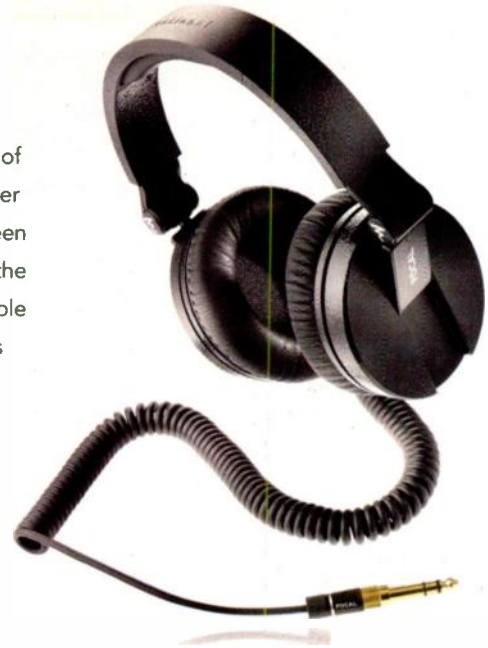

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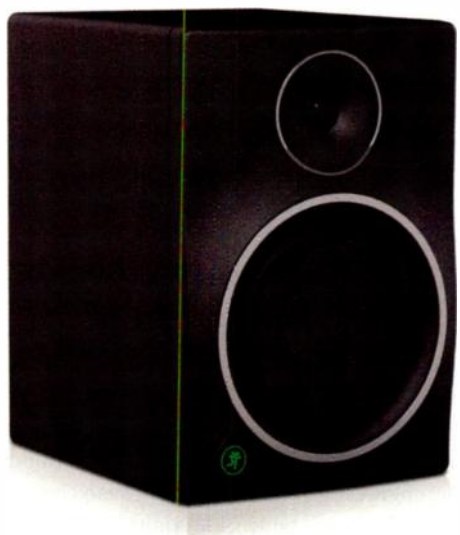

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WHAT'S YOUR REFERENCE?

By Kevin Becka

Over the past few months, I've been thinking about how the data our brains reference affects the outcomes of anything we do or think about. For example, those who saw Michael Jordan, Magic, or Kareem play their best have a better appreciation of Kobe and LeBron. It's also the reason audio engineers bring their own speakers to gigs, love the mics, consoles and outboard they do, and have their favorite sample rate—it's all about the reference. I'll never say no to a good reference, even if I know I'll never hear or see it again.

How about product evaluation? At trade shows, especially NAMM, I'm often urged by manufacturers to listen to their products. For fun I always give it a go, but I always know in the back of my mind that when I get them in a critical listening environment, everything will change. In this case the room is the reference: In an environment that stays out of the way, you can make a better judgment to what's coming out of the box.

A little over a year ago I had one of the best listening experiences of my life at Le Lab Mastering in Montreal. The studio was a Tom Hidley room resurrected from oblivion and turned into a successful finishing environment. I was on the trip with Lorenz Reichner from *Recording*, Larry Crane from *TapeOp* and Strother Bullins from *Pro Audio Review*. I heard things in my mixes in that room that I had not heard before or since and will always cherish that reference. We were all changed by the trip, and even if we never hear that room again, we can all put it into our list of great listening experiences.

I have a good buddy, a teacher, who would bring Beatle references into his class every day. Today in Beatle History was a linchpin of his teaching workflow that gave a valuable reference that was lost to many millennials. Whether you like the music or not, what that team of producers, engineers and musicians brought to recording is undeniably the foundation and fabric of modern music. For example, engineer Ken Scott recently turned me on to ADT (automatic double tracking), which I brought into my classroom. We took various tracks, put them through the process and the results were randomly amazing. I've been using guitar and studio effects since I was 11 years old, and ADT produced outcomes that you cannot come close to using a pedal, plug-in or processor. It's not that you're going to use it on every song or production, but to have that in your base of references is golden.

My original experience in editing audio comes from tape. Although it's limited in scope, time-consuming and aural rather than visual, there's something wonderful about it. I recently taught a group of students the basics of ½-inch and 2-inch editing techniques, then polled them to see what they thought of the process. Lines were clearly drawn between love and hate—about half *really* loved it, and the others thought it sucked. Of course, when I asked who would turn down a job at $70 an hour to do tape edits, everyone loved it. The point here, whether you like the process or not, is the lesson learned in trusting your ears. Closing your eyes and rocking the tape back and forth across a kick or snare hit, then dropping it back into that dead zone just before the initial hit to mark the cut puts your head in a Zen-like space of trust, making you one with the music. After all, no one got into this business because they thought music looked good. And while visual editing is technically better, and I do love it, I don't know anyone who scrubs audio when editing in a DAW. While it's eminently easier and more convenient to make digital edits, it's like kissing through a screen door—something's lost.

Another great reference is hearing what driving real analog tape to its limits does to a track. One at a time, I put students in the sweet spot with the ability to source select the same mix laid back to ½-inch at increasingly hotter levels. We adjusted the output levels the same amount so we'd limit the "louder-is-better" syndrome that messes up any A/B evaluation. When comparing the original with the gassed mixes, everyone immediately got it, especially when they jumped to the +6dB hotter version and were prompted to reference the snare drum over the original 0dB version. While it squashed the dynamic range and flattened the transients, it made the guitars sound great.

What's the takeaway? You can apply this reference to tape simulator plug-ins, which unlike real tape give you the ability to play with non-linear tape distortion individually on each track. You can hit "tape" harder on guitar tracks and conversely tone down distortion on transients like snare, kick and toms. Some sim plug-ins let you flip the lid and play with bias and EQ, giving you another great set of references to play with. You'll get more personality out of under-biasing a copy of your lead vocal and blending it in with your original than you will with a simple EQ and compressor chain.

So I guess the point of all this is to embrace the past as much as the present. Don't say no to anything that gives you another reference from which you can make your decisions and do your work. Malcolm Gladwell argues that elite systems are based on access, and those with better access, the Mark Zuckerbergs, Bill Gates and Robert Oppenheimers are who they are because of their references. Just say yes! ■

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