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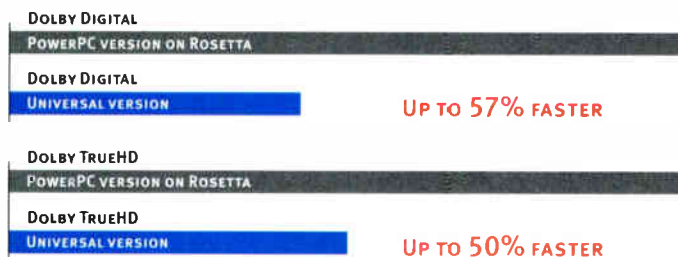
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*Comparison done on a Mac Pro with two 2.66 GHz dual-core Intel Xeon® processors.

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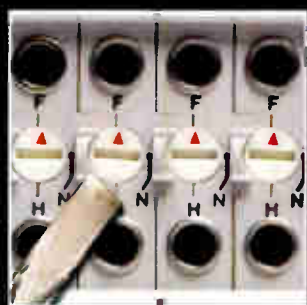
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NATHANIEL KUNKEL

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Sting

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Nathaniel Kunkel's Studio Without Walls is as much an approach to making records, as it is the actual physical studio. "I move around all the time and I take my studio with me. More often than not I find myself working in smaller, irregular rooms, such as a guest house, office, or hotel room. When I am working in a smaller room like that, the first thing that gets sacrificed is the monitoring environment – and there is almost always some kind of low frequency problem. The LSRs allow me to know exactly what is going on with the bottom end, and create mixes that translate impeccably outside of the studio. The RMC system makes a tremendous difference. I've been working on the JBLs exclusively and I'm really, really happy with them."

Hear why award-winning engineer, producer, Nathaniel Kunkel relies on the LSR series studio monitors. Visit JBLPRO.com/LSR



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PAGE 92

On the Cover: The new SSL C200/Pro Tools-based production/mix room at Yahoo Music (Santa Monica, Calif.) was redesigned to handle any type of multimedia or music project. **Photo:** Edward Colver. **Inset Photo:** Steve Jennings.



features

32 Production Construction

The Blurred Line of Songwriting and Beatmaking

Which came first? The song or the beat? If you have worked on a contemporary pop, rock or country track, then you're familiar with the process: songwriting, then pre-production, then arranging, then tracking... But in the ever-growing field of hip hop and R&B, and other rhythm-based genres such as pop, songwriting is becoming more intertwined with the beatmaking process.

42 Effects Emulation Plug-Ins

Analog this, analog that. You would think that anything "digital" would have a complex from constantly being compared to the God of Analog. But the designers behind emulation plug-ins are creating products designed to make digital sound just as good as its analog cousin.

69 TEC Awards Voting Guide

For the first time, this year's voting will take place solely online at www.mixfoundation.org or www.votetec.org; there will not be a printed ballot. This year's ceremony, held October 6 in New York City, will find production sound mixer Ed Greene inducted into the TEC Hall of Fame. Check out the guide to this year's nominated people and products—and then go online to cast your vote!

92 New Developments in Digital Snakes

With the growing acceptance of EtherSound, CobraNet, fiber and Cat-5 in the live sound realm, digital console owners are packing digital snakes into the truck to upgrade their audio/control distribution system. Check out the new crop of these essential road components.

Check Out Mix Online! <http://www.mixonline.com>

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Technology and Production

One Sunday morning a month, a group of individuals can be observed in a parking lot not far from the *Mix* offices moving items in and out of car trunks and exchanging money. Drug dealers? Gun runners? Fences moving hot merchandise? Hardly. They're 78 rpm record collectors who meet to swap century-old technology. So, 100 years in the future will there be similar meetings of enthusiasts trading vintage MP3s or WMA files? Probably not. Technology is constantly evolving, although there is something inherently cool about hearing a 75-year-old jazz performance on a wind-up gramophone.

I'm not proposing we go back to the days of 78 rpm records, but technology has made an enormous impact on audio workflows. The arrival of multitrack recording enabled works that were impossible to create in real time, where one player could perform several—or all—of the parts. But more importantly, multitrack opened the door for experimentation with multiple overdubs of different vocal or instrumental tracks. Its arrival also marked a point where the production phase became much longer, moving from a simple "record the band in the studio" process to becoming the center for creativity. And rather than just a few days, artists were suddenly spending months in the studio.

Traditionally, pre-production meant a lot of pre-session work—writing/choosing material, working out arrangements and rehearsing. True, nothing can match the excitement of working with a group of great players, but with a lot of today's music, there is no "band." In many cases, the producer assumes that role, writing beats, grooves and riffs, and often collaborating with the artist to work out the lyrics in the studio. Here, the DAW goes far beyond acting as an editable multitrack. Loaded with looping/beat-construction tools, virtual instruments and DSP plug-ins, the workstation becomes the studio itself and is capable of creating nearly any genre of music.

Just as playing a grand piano or fine acoustic guitar can help inspire the creation process, so can a collection of cool grooves. Technology serves art. Art serves technology. And the circle is complete, especially with digital tools shattering the barriers of affordability. Need a (virtual) 1928 Steinway "B," LA-2A or a rack of Pultecs? No problemo. Technology has definitely changed the way we work, but whether rehearsing a band before tracking or knocking out beats, there's still a creative human touch that makes the difference. And that song remains the same.

Speaking of creativity and technology, this issue includes our annual Technical Excellence and Creativity (TEC) Awards voter's guide. This year, we've instituted a fast, online means that simplifies the process where subscribers can help select pro audio's best people, products and facilities. (For more details, see page 69 or visit www.mixfoundation.org.) Another change this year is a new category that recognizes the increasing importance of Interactive Entertainment Sound Production. The online balloting begins August 1. It's your industry, so take a few minutes and cast your votes.

We're counting on you.

George Petersen
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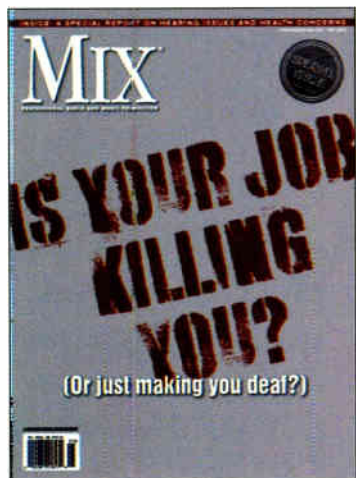


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Letters to Mix



NOT QUITE RIGHT

In the article "It's Your Life, Dammit!" in the May 2007 issue, there is a factual error: The "Super Beetle" amplifier was made by Vox, not Univox. These were different companies. I believe there was a "Super Beetle" made by the English Vox company, but the only ones I ever saw in the U.S. were the solid-state versions made by the Thomas Organ company under a Vox license. They were a loud, but terrible-sounding amplifier that sounded nothing like the English, mostly Class-A, tube-type Vox amps.

The Thomas Organ Vox amps had some contributions (I think mostly speakers) from Gene Cerwinski, of Cerwin-Vega fame. I used to visit him in the '60s in his North Hollywood facility. He was quite a guy when it came to speaker designs. This was the first company I knew of that made a musical instrument speaker that would actually reproduce a 40Hz note (low E) without doubling the pitch.

Neil Lindsay
The Tracking Station

AN ENGINEERING MOTTO

The new Paul McCartney disc sounds horrible. The recording speaks so poorly to the craft of audio engineering that when asked what I do for a living, I will be tempted to say that I hang drywall.

McCartney will sell millions of units because of who he is, and because the songs he writes are accessible and well crafted. Starbucks, in what I consider a brilliant new vehicle for music, has the opportunity to help heal an industry plagued with anger, fear and confusion on both the corporate and consumer level. What better opportunity does the audio engineering community have to shine, what better

opportunity to lead and to teach? If only audio engineers had a Hippocratic Oath pledging to "Do no harm."

Eric Conn
Independent Mastering, Nashville

SO YOU'RE PAYING ATTENTION

The caption for the picture of Caleb Followill on page 117 ("Recording Notes," June 2007) indicates that he sang into a Shure SM57. While the picture there is of a Shure microphone, it is an SM7, not an SM57

Rick Chinn
Uneeda Audio

TIME TO SAVE THE KIDS

It was with great interest that I read Paul Lehrman's "Insider Audio" article, "The Healing Power of Music" in the May 2007 issue. I have been an audio engineer since 1970. I was the chief engineer/VP of Sheffield Audio Video productions from 1975 to 2000. I have been nominated for a Grammy for Best Engineer and have recorded more than 150 major artists, mostly live broadcast. I taught audio engineering for 25 years, created the Sheffield Institute for the Recording Arts, wrote the majority of its curriculum and ushered it through the very difficult approval process of the Maryland Higher Education commission.

More importantly, for the past 18 years, I have served on the board of directors of an international organization that treats brain-injured children. As the vice chairman of The Institutes for the Achievement of Human Potential in Philadelphia, I learned a tremendous amount about hurt kids and their parents. I had the advantage of studying with some of the greatest minds in the field of child brain development and had the opportunity to help them with my understanding of audio and video technology.

Around 1990, I began to study sensory stimulation as applied to brain injury and helped the Institutes expand their mechanical auditory-stimulation program to include Berard auditory integration therapy. However, I was not satisfied with the fit between the office-based Berard program and the parent/home-based methods. That is when I decided to do some in-studio FFT analysis of the Berard Audiokinetrone to determine whether or not the output signal could be contained in the 44.1/16-bit CD format. What I found was that a 96dB dynamic range and lack of saturation at the highest frequencies was an advantage that the CD had, which would make it an acceptable platform for a portable, home-based AIT program.

I created the Transient Electronic Auditory Stimulation (TEAS) program for the Institutes around 1993. The next year, I decided to bring the technology to parents who might not be able to participate in an Institutes program, in the form of the Electronic Auditory Stimulation Effect (EASE) CD. Since 1994, tens of thousands of parents, therapists, treatment centers and non-profit organizations have used EASE CDs to help autistic children and ADD, ADHD, Cerebral Palsy and Downs Syndrome-afflicted kids. You can see more about the EASE CDs at www.easecd.com.

I loved reading the quotes from Tom McGurk. I have fought for these principles for so many years—against such incredible odds—that to see a parent so well-versed and articulate express them with such clarity was a real joy. I would like to end this with an offer of a set of 11 free EASE CDs to Tom and his wife. Many parents use them for auditory tune-ups after AIT, and they could be extremely helpful to their son.

Bill Mueller
Vision Audio Inc.

TALKBACK

We asked you, our readers, to tell us about your pre-production style. Here's a sample of what you are doing out in the field; to listen to the track, visit mixonline.com/TalkBack:

This cut was pre-produced and finished in a room that is 10x10, which includes the control area and the recording area. The original rhythm tracks and horns were recorded to a PC and transferred to ADATs. The bass and drums were triggered by a Korg Triton Pro 76 through a Roland BD sound module. Horns were courtesy of a Roland Sound Canvas PC card. Vocals and additional effects were through a Helicon vocal processor and BBE Aural enhancer. All tracks were through a Tascam 32/8 board onto linked Alesis ADATs (Blackface). Limiter/compressors by dbx. An Alesis unit provided the delay and reverb. The project was mastered on a Sony PCM-R300 DAT. Monitor speakers were JBLs, and the vocal microphone was an AKG C 460 B. The project was used as an album for a children's ministry in Atlanta.

Barney Conway

Get more trade secrets on pre-production on page 32.—Eds.

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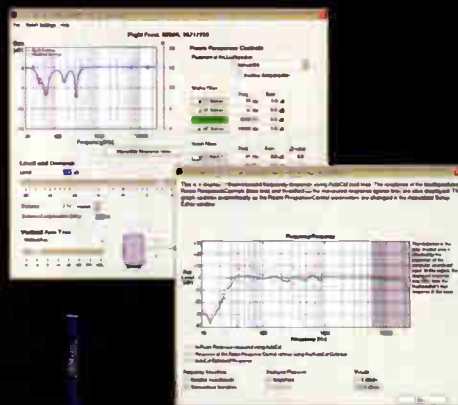
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HISTORIC MUSCLE SHOALS STUDIO RE-OPENS

In 2005, Muscle Shoals Studio (www.muscleshoalsound.org) closed its doors due to a lack of interest in financing the studio and more interest in Muscle Shoals Sound Publishing. Now, studio owner/musician Noel Webster has reopened the facility. "When I realized all the history that had happened there," he said, "I decided this place had to be preserved. I wanted to share it with the world. The music that was made here has been the music of generations, the theme of people's lives. Everybody knows the records, but they don't know the place where it happened."

Webster has refurbished the studio (repairing water damage, installing new wiring, etc.), and rather than install up-to-date recording equipment, he ordered exact replicas of the vintage gear used during the 1970s—down to the same model numbers. "The way they

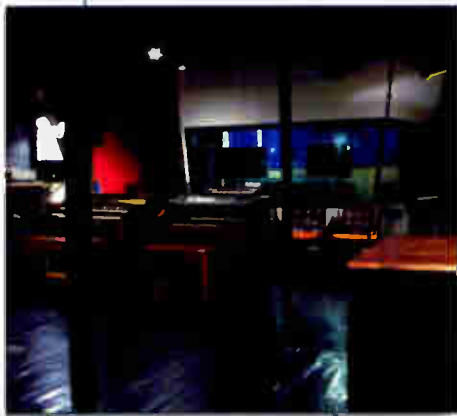
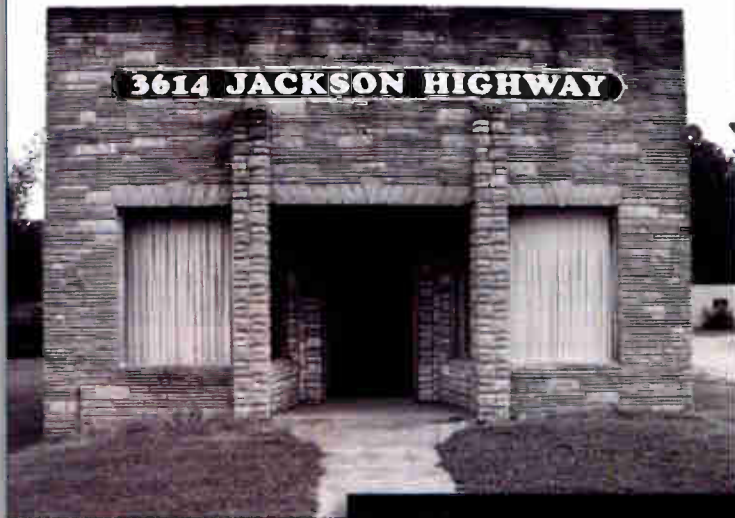
construct studios now is very different," he added. "But we did a sound test and recorded some stuff

on different formats, and realized we didn't need to change anything. The sounds that came out of this room can't be duplicated. The building shakes when you play in it.

"Although I rebuilt it as a place to record my stuff, so many artists wanted to come

here that I decided to open it and raise some capital that way, putting my own [music] career on the back-burner."

This past June, the studio was added to the National Register of Historic Places and is open to the public for tours.



ROY PRITTS, 1937-2007



Roy Pritts, who did a little bit of everything in audio, from working as a consultant in audio forensics in Colorado to performing with such musicians as John Denver, The Carpenters, Elvis Presley and many others, passed away last month at the age of 70.

Pritts enjoyed numerous occupations over his career, most notably establishing the Music Technology/Recording Arts program at the University of Colorado at Denver in 1971 and helping to create the graduate program in Recording Arts in 2002. He taught audio engineering, electronic music and music composition until his retirement in May 2006.

During his tenure, Pritts served as the Resident Dean of the College of Music from 1984 to 1989. He also taught audio engineering courses at the University of Massachusetts Lowell, the University of Miami, the Institutes of Cinematography in both St. Petersburg and Moscow, the Moscow State University (Russia), the Technical Universities of Gdansk (Poland) and Prague (Czech Republic), Taller de Arte Sonoro (Venezuela) and the University of Lulea-Pitea (Sweden).

The Pritts Collection of historical audio technology is on display at the National Center for Voice and Speech in Denver. A scholarship to benefit Recording Arts graduate students is being established in Pritts' name through the University of Colorado Foundation. Individuals and organizations can donate by sending a check with Roy Pritts Fund on the memo line to: ARCS (Achievement Rewards for College Scientists), PO Box 6808, Denver, CO 80206.

GC BOUGHT VENDORS STAY

Bain Capital Partners LLC, a private investment firm, has bought Guitar Center for \$2.1 billion, including assumed debt. The transaction is expected to close in the fourth quarter of 2007. Guitar Center had been part of an auction process at Goldman, Sachs & Co. to solicit interest in a potential buy-out of the company.

According to Marty Albertson, chairman and CEO of Guitar Center, "We are committed to maintaining our vendor relationships and ensuring our customers will continue to experience the same quality and selection of musical instrument products, as well as the high level of service and professional advice through our stores and our Websites."

OCEAN WAY NASHVILLE REMAINS FACILITY PART OF BELMONT

Ocean Way Nashville (www.oceanwaystudios.com) is now part of Belmont University's Mike Curb College of Entertainment and Music Business, but the facility will retain the Ocean Way name. The school has renewed its license of the Ocean Way name for the Nashville recording studios and its consulting contract with the studio's founder, Allen Sides.

According to Sides, "As much as I love the studios, and as proud as I am of the design, I rarely had a chance to work there because I was too busy with my studio operations and album projects in L.A. In 2003, when the possibility arose of Belmont University purchasing the studios, it extended Belmont's campus into the heart of Music Row and provided Belmont with three exceptional music studios. The arrangement I worked out left our management team intact and allowed the studio to continue commercial operation while providing internships during the studio's off-time."



ON THE MOVE

Who: Jason Rhode, Cirrus Logic president/CEO

Main Responsibilities: setting a vision and clearing problems out of people's way.

Previous Lives:

- 1995-present: various positions at Cirrus

The most exciting moment while working at Cirrus was...being promoted to CEO. There is a tremendous amount of satisfaction involved in talking to customers about what they need, coming up with a way to satisfy that need, developing the product and winning the socket vs. some tough competition.

The one object in my office that most reflects my personality is...a big LCD TV hooked up to a PS3 so that employees are encouraged to stop by and say, "Hi."

Current in my CD changer (or iPod)...Foo Fighters, Nickelback, Sammy Hagar, Nelly Furta-do, Joss Stone, Chili Peppers, Guns, AC/DC.

When I'm not at work, you can find me...enjoying all that Austin has to offer. I live in the middle of downtown and it is pretty rare that I don't catch a show on the weekend.



TEC UPDATE

INTEL, GIBSON, HARMONY, DOLBY, OTHERS SIGN ON AS SPONSORS

The Mix Foundation for Excellence in Audio has announced an impressive lineup of sponsors for the 23rd Annual TEC Awards, to be held in New York City on October 6. Heading up the list as Front of House Sponsors—along with founding sponsor *Mix*—are chipmaker Intel; Gibson Guitar Corp., longtime sponsor of the Les Paul Award; sustaining sponsor Harman Pro Group; and Dolby Laboratories, sponsoring the TEC Awards Hall of Fame induction of Ed Greene.

Joining as Platinum sponsors are American Music and Sound (Allen & Heath/Focusrite), RØDE/Event Electronics and microphone stalwart Shure. Also supporting this year's TEC Awards (as of press time) are

21 Gold, Silver and Bronze sponsors from every corner of the pro audio industry. For a complete list of sponsors, along with company profiles, please see the TEC Voter's Guide in this issue.

Remember, the last day to vote (for *Mix* subscribers) is August 31. Log on to mixfoundation.org to cast your vote today!



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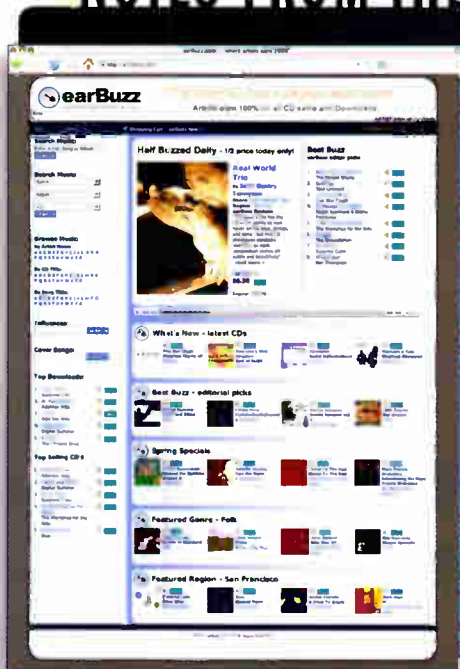
According to a recent study by the NPD Group, Apple's iTunes is the third-largest music retailer in the country in any format, digital or physical. Wal-Mart remains the largest with 15.8 percent of the market; Best Buy holds 13.8 percent, while iTunes garners 9.8 percent.

ART AND MUSIC MINGLE AIC ADDS AUDIO TRACK

The Art Institute of California, Los Angeles (www.aicnewprogram.com/losangeles) has added a Bachelor of Science degree program in audio production. Courses of study include technology, theory, industry trends and business practices in audio engineering and post-production. The advisory committee comprises Grammy-nominated record producer Rob Graves and Emmy Award-winning sound editor Mark Steele, among other top talent.



NOTES FROM THE NET



ALL MONEY TO THE ARTISTS

Indie online music retailer earBuzZ.com now offers digital downloads and CD sales with 100 percent of the purchase price paid back to the artists. Music buyers have the choice of a shipped CD; a non-DRM, 256-bit AAC download; or an optimized, encoded MP3 download for \$0.89 (AAC or MP3). Membership fee is \$2 per month with a one-time processing charge of \$25 per CD title. earBuzZ.com's current roster shows more than 1,000 artists, including five-time Grammy-nominated pianist and composer Suzanne Ciani, Rolling Stones' keyboardist Chuck Leavell and more.

WHEN YOU JUST WANT TO JAM

Lightspeed Audio Labs' JamNow provides a site where musicians can search for openings of sound rooms. Bands and artists can create openings for other musicians to join

them instantly; once in a sound room, musicians can choose to open the room to select fans; archive, post or download jam sessions; and much more.

MASTER CLASSES UM HOSTS



The University of Memphis' Music Industry division hosted producer/engineer George Massenburg and Platinum-selling artist Brian Vander Ark; Massenburg spent two days teaching master classes and providing hands-on demonstrations, including a live recording session with Vander Ark.

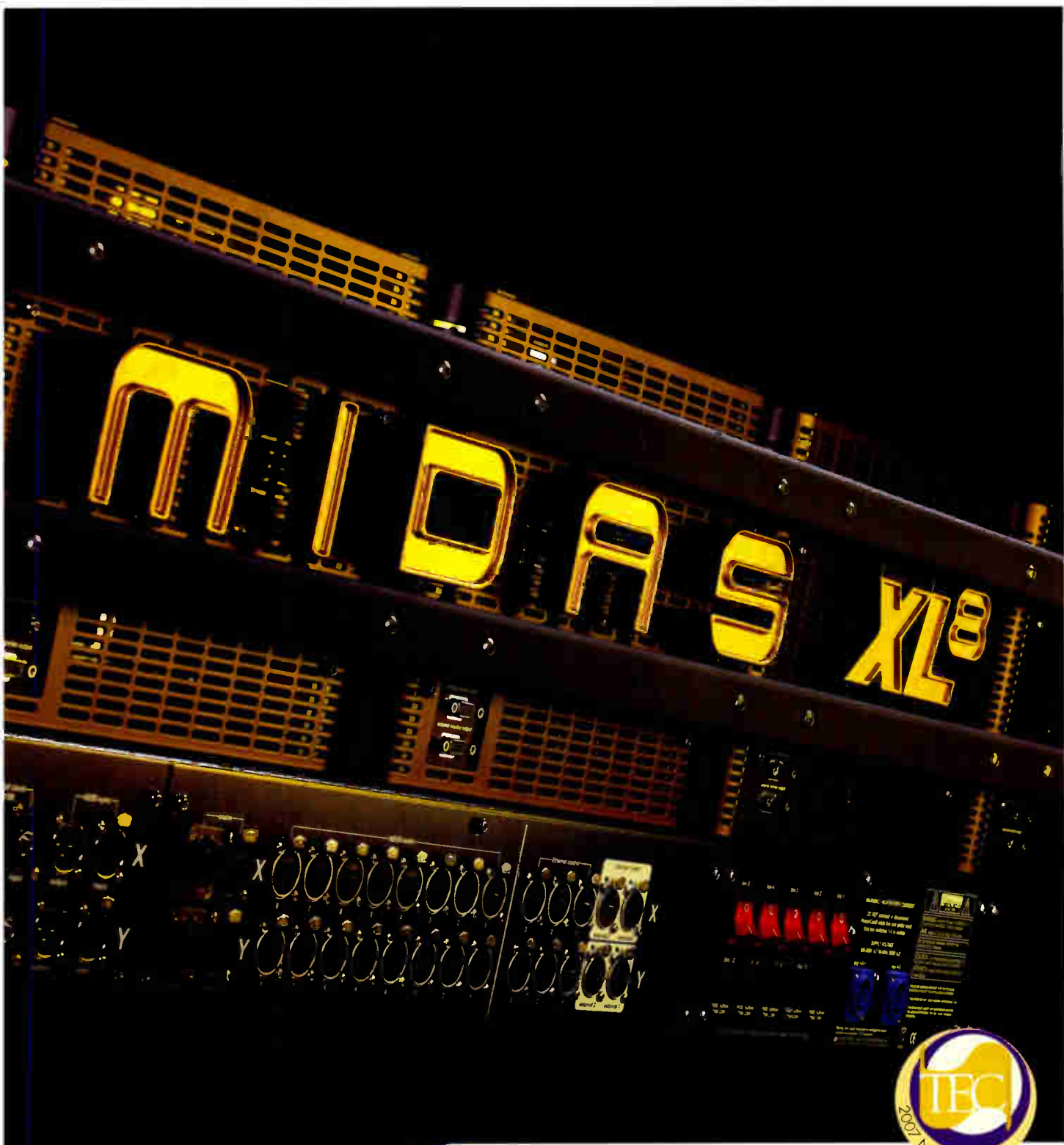
INDUSTRY NEWS



Edward Teran

New director of sales at **WorxAudio Technologies** (Greensboro, NC) is **Jerry Spriggs**...The **Stanton Group** (Hollywood, FL) named **Jamie Ward** to UK sales director post for Stanton DJ and Cerwin Vega Pro...**Quinton Nixon** was promoted to **SSL's** (Oxford, UK) partnership manager position...Filling the newly created position of product and training specialist/field engineer for **Symetrix** (Mountlake Terrace, WA) is **Dallas Dougherty**...**Headroom Digital Audio** (NYC) hired **Risa Neuwirth** as casting director...**Aviom** (West Chester, PA) expanded its sales force with **Jonathan "JP" Parker**, director of international sales in Asia Pacific, and **Mark Meding**, director of sales for East Coast...New faces at **D.A.S. Au-**

dio (Miami) are **Carolain Velez**, administrative assistant, and **Edward Teran**, sales associate...**Jeff Miller** fills the newly created draftsman position at **Event Tech** (Hanover, MD)...**Furman Sound** (Petaluma, CA) promoted **John Benz** to marketing manager...New distribution deals: **Harman Pro Group** (Northridge, CA) appointed **NetWork Sales & Marketing South** for Nebraska, Iowa, Southern Illinois, Missouri and Kansas; **Bock Audio** will be distributed by **TransAudio Group** (Las Vegas); **Sounds Distribution** (Toronto) now handles **GCI Technologies'** (Edison, NJ) Gemini, Cortex and iKey Audio brands in Canada; Lancaster, PA-based **Linear Acoustic** named **Advanced Broadcast Solutions** (Kent, WA) as its exclusive Pacific Northwestern dealer; **Prism Sound** (Cambridge, UK) appointed **Real Music Ltd.** (Kiev, Ukraine) as its exclusive Ukraine distributor; and Cologne, Germany-based **Music Store** is the new dealer for **Audient's** (Hampshire, UK) consoles in Germany.



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As always, there are more photos from the show than we have room to print. Peruse the Feist photo gallery.



LISTEN:

"Production Construction"



You've read about how these producer/beat-maker create music before the artist steps foot in the studio, but what does it sound like? Check out these audio clips.



LISTEN: "Recording Notes"

Tune in to audio clips from Nick Lowe, Richard Thompson, Tori Amos, Tears for Fears' "Everybody Wants to Rule the World" and Cool Spins.

PLAY: 30 Years of Memories

Mix turns 30 this year, and we want to celebrate with you. Tell us your favorite audio recording/live/post/tradeshows moment from the past 30 years. Let us know by e-mailing mixeditorai@mixonline.com.



CURRENT

NOTES FROM THE P&E WING

Fair Pay for Airplay

BY DARYL FRIEDMAN

As a member services division of The Recording Academy, the Producers & Engineers Wing is involved in numerous advocacy initiatives aimed at improving the lives of those who create music. An issue that's currently heading to centerstage is the matter of terrestrial radio performance royalties, with pending legislation that is of great significance to music producers.

This past June saw the launch of one of the most important fight for music creators' rights in a generation. Ironically, this fight actually began a generation ago—50 years ago, as the first Grammys were just taking shape, Frank Sinatra and other artists raised the issue of royalties for the airplay of their recordings on radio. The fight was continually suppressed by the powerful broadcast industry, which was in no mood to pay artists for the sound recordings that formed the basis of their business.

Let's start with the basics. Every piece of recorded music contains two copyrights: the musical work (words and music), which is created by the songwriter, and the sound recording—the recorded performance created by the artist. In the U.S., on over-the-air "terrestrial" radio, the musical work enjoys a performance right paid by the broadcaster; the sound recording doesn't. For example, when "Respect" is played on terrestrial radio, the songwriter (Otis Redding Jr.) is compensated, while singer Aretha Franklin is not. Redding (and his estate) should receive a significant royalty from radio for creating this classic, but so should Franklin, who brought the song to life and created the second copyright. There's room in terrestrial radio's profitable \$20 billion annual revenue to pay both. Broadcasters claim, "This is the way it's always been; there's no point in changing now." This brings us back to the question of "Why now?"

The United States is one of few countries that lacks this basic intellectual-property protection. In other developed countries, terrestrial radio broadcasters compensate performers and recording owners when they play their music. In fact, in the past decade, the United States has become the *only* member of the Organization of Economic Cooperation and Development without the performance right. Further justification for action is payment from other platforms. Satellite radio, Internet radio and music delivered over cable all compensate songwriters *and* artists with royalties. It is hard for terrestrial broadcasters to claim that they cannot afford to pay artists when their newer (and less-capitalized) competitors pay. And with this new right, producers are finally getting paid for the performance of the sound recordings.

Finally, sound recordings remain the only performable copyrighted work in our copyright law that is not protected with a performance right. Literary works, choreography, audio/visual works all are protected with a performance right. Sound recordings are the only ones not protected.

So with these three inexplicable anomalies (the United States is the only country; terrestrial the only platform; and sound recordings the only copyright where the performance right is unprotected), radio's quest for business as usual can no longer be justified.

What about promotion? Radio's other argument is that airplay promotes record sales. Well, studies show in many formats that radio actually serves as a substitution for purchasing music. Regardless, promotion should never replace compensation. If a book is turned into a movie, then it promotes the sale of that book, but the author still gets paid for the movie rights. Whether promotional or substitutional, creators should always be paid for the use of their work.

This year, a group of organizations, including The Recording Academy, has come together to address this longstanding inequity that costs artists and producers hundreds of millions of dollars. The musicFIRST Coalition asks only for what is fundamentally fair and what will bring us in step with the rest of the world. We're asking for "Fairness in Radio Starting Today," and we're hoping you'll look seriously at this issue and add your voice to this movement to help music creators. It's good for artists, it's good for music producers, it's good for consumers and it's good for the music industry. To find out more about this initiative, please visit www.musicfirstcoalition.org. To find out more about the Producers & Engineers Wing, please visit www.producersandengineers.com. ■

Daryl Friedman is the Recording Academy's VP of advocacy and government relations.



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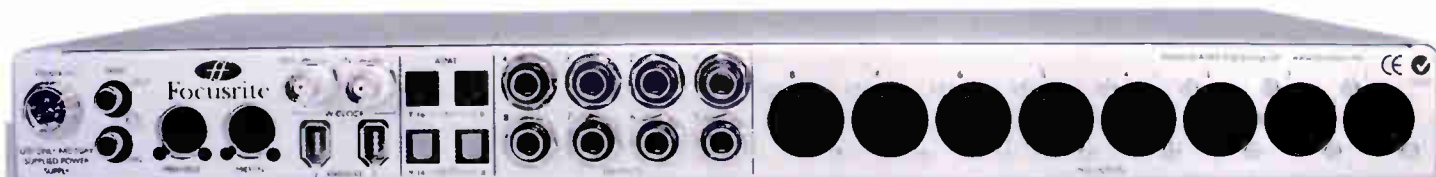
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Yahoo! Originals Studios

By Harrison Surtees

Like Spinal Tap, whose amps go to 11, Yahoo! is cool-plus-one. It's part of the company culture, and it's a philosophy that has been embraced over the years by Ian Dittbrenner, newly named director, studio and content operations, at Yahoo!'s production facility in Santa Monica, Calif.

Dittbrenner, formerly director of audio for Yahoo! Originals, continues to work out of a modest studio tucked away at the rear of the 35,000-square-foot, two-story office building in a high-tech, corporate neighborhood where Apple, MTV and Red Bull are just a stone's throw away. The cool-plus-one factor in the studio—which Dittbrenner helped implement 10 years ago and in which he has worked ever since—extended, until a few weeks ago, to the sort of rock 'n' roll ephemera more frequently associated with the Hard Rock Café. "Over a period of 10 years, living in this room I'd accumulated all these guitars and stuff," he says. "I had guitars signed by Madonna and Rick James—all sorts of people." But, he acknowledges, the clutter of instruments and racks of outboard gear were a smoke screen: "I was subtracting from the room; I needed something to distract people."

Dittbrenner typically records, mixes and masters live performances by A-list artists in the studio, as well as produces and post-produces dozens of music-related lifestyle pieces every month for the Webcasting giant. Yahoo! Originals is one of the most visited online music destination and creates a broad variety of programming, including "Pepsi SMASH" and "Who's Next." Then there is "Nissan Live Sets," a mini-concert and audience Q&A show filmed on the 20th Century Fox lot that Dittbrenner both mixes live and post-produces, and which is the most popular music program on the Internet, he says.

The studio's analog Euphonix CS3000 console had served the company well, but it was time for it to be retired. Chosen after intensive test-driving of all the alternatives, its replacement, a Solid State Logic C200, "is cool-plus-nine," he enthuses. "My excitement about the console now that I have it is tenfold compared to before we bought it."

That's due in no small part to this being a one-of-a-kind "signature series" C200. Ditt-

brenner wrote a lengthy e-mail to Peter Gabriel (co-owner of SSL since 2005) outlining Yahoo!'s cool-plus-one credo. "I explained we have auto-graphed guitars from John Paul Jones, Fifty Cent and other things that set us apart from everybody else in what we do. Regardless of what we do, we do the best production in our medium and we're trying to take that a step up." The result? Indelibly scrawled across the C200's meterbridge is a handwritten message from Gabriel: "Boo to Yahoo! and thank you, too. Happy music making, Peter Gabriel."

With Dittbrenner's change in job title has come an extension of his responsibilities. His purview is no longer just music, but also all Originals at Yahoo!, and the entire building has now been handed over to him to be transformed into a multipurpose production center. Preliminary plans have been drawn up for a facility—which will be designed by George Newburn and Studio 440—that will include a substantial music stage, a news and sports studio, dedicated mix and tracking rooms, central ingest and machine rooms, edit suites and office space.

Dittbrenner's current corner of the building already houses a small Digidesign ICON that was supplemented very recently by an SSL AWS 900Plus system. Before the larger plans were approved, he says, he pushed for a "technical lobotomy" in his audio room, which will operate as an insert stage under the new plan.

"Right now, [the C200] is specifically to give us a leg up on our future endeavors," he says. "It's also to track and record on a better scale the artists that we bring into the studio." Although, he admits, "before, forcing a band like Coldplay to have only 16 inputs and four monitor mixes created a situation where we got something much more unique; that was our secret for a long time."

As for the next stage: "How will this integrate into everything? Paul Cox!" Dittbrenner says with a laugh. Cox, of Paul J.



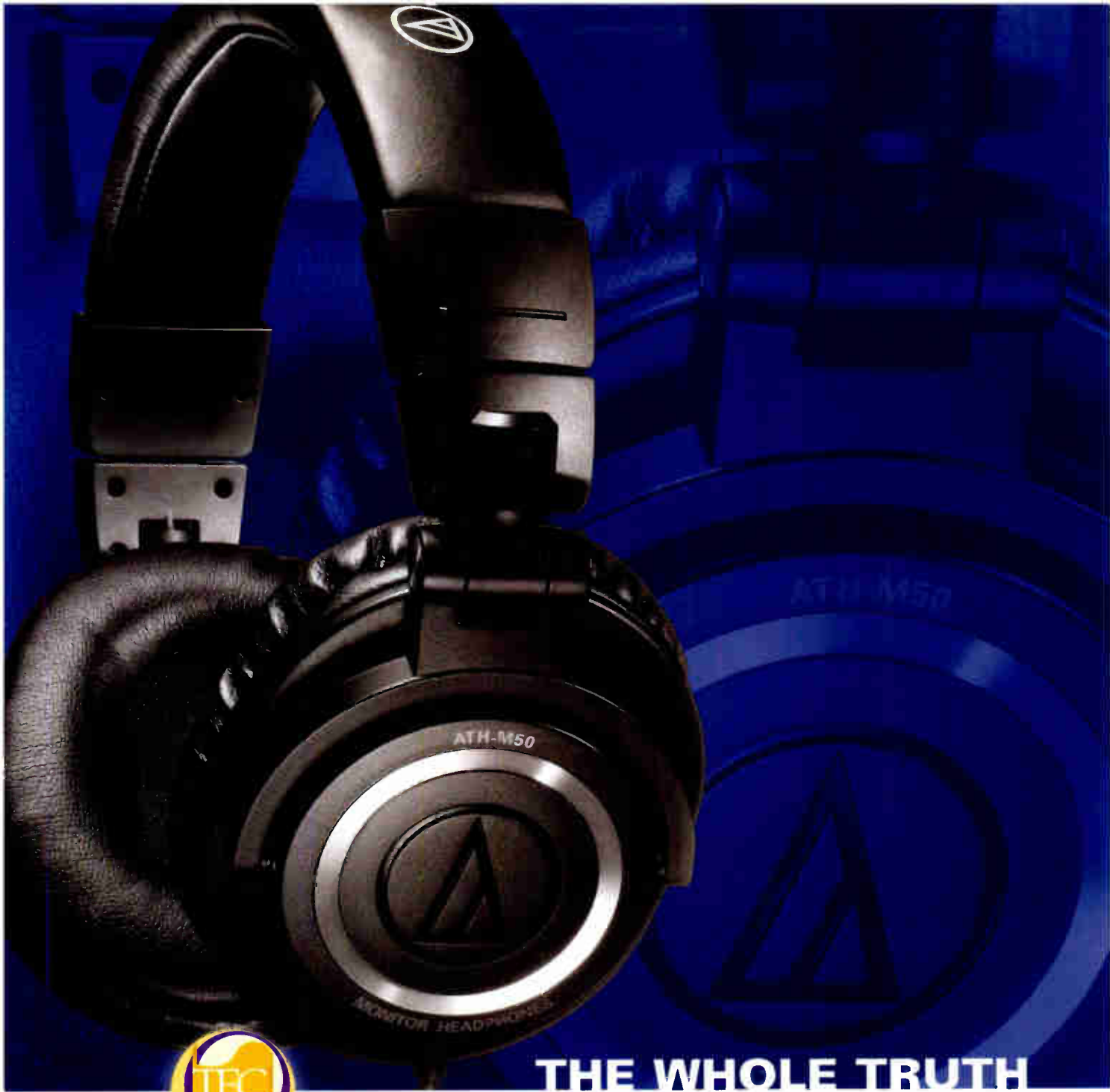
Yahoo! Originals' newly named director of studio and content operations, Ian Dittbrenner, at the Solid State Logic AWS900Plus

Cox Studio Systems, provided the room's technical upgrade and is being retained for the larger technical install, which allowed him to design the room for easy integration into the future facility.

Cox elaborates on his role re-commissioning the room: "Everything is new for this console; I just like putting rooms together that are really tidy. I don't think there's any reason why you should ever need a cord across the floor. When it's clean and reliable, you can't beat it. There's nothing like a fresh console in a fresh room and a fresh complement of new outboard gear." That equipment includes a new GML 9500 EQ and an API rack filled with A-Design and Shadow Hills preamps, and other outboard units.

Media convergence played a part in the decision to purchase the C200, as did SSL's strong broadcast background, according to Dittbrenner, who hints that a global live program from the facility next year might be a possibility. "The broadcast aspect was factored in; it was an important piece of the puzzle," he confirms. Indeed, Dittbrenner believes that his nimble and flexible staff and facility are archetypes for the broadcast and Webcasting landscape going forward, especially in Santa Monica, where many Hollywood facilities have found new homes in recent years. "We're able to move really quickly. The marketplace is moving closer to where we've been for the last 10 years. And through lucky timing, we were able to get the first C200 on the Westside." ■

Harrison Surtees is an L.A.-based writer.



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Thanks for the Memoirs

Three Books From Inside the Biz

Anyone who's spent any time in the music business has great stories to tell, and consequently the ranks of musicians, engineers and producers include a lot of great storytellers. To learn how the great practitioners accomplished their art, how the industry has grown and evolved, and what kind of craziness goes into the creative process, nothing beats the personal touch. Memoirs by the likes of Bing Crosby, Igor Stravinsky, Taj Mahal, George Antheil, Richard Rodgers, Bruce Swedien and Wynton Marsalis are not only entertaining, but they should also be required reading for anyone who considers himself or herself serious about a career in music.

Because it's still summer, it's not too late to get away from your computer and get outside with an old-fashioned book. Here are three music memoirs I strongly recommend for your leisure hours, now or in any other season. They're well-written, insightful, funny and full of characters you already know, or you think you know, or you'd really like to know.

The hot new music book of the year is *White Bicycles: Making Music in the 1960s* by Joe Boyd (Serpent's Tail). If that name isn't familiar to you, it should be. Boyd was a preppy kid from New Jersey who was a major player in the musical revolutions of the '60s in the United States and in England. His style is modest and self-effacing: There's only one clear picture of him in the book, and he's in the background. But he was right in the thick of the most fertile era in pop music history.

In high school, he was booking blues artists to play in friends' living rooms, and at Harvard he roomed with folk legends Geoff Muldaur and Tom Rush and watched the folk stars of the future get their starts at the legendary Club 47. One night he was invited to the home of a girl he picked up in Harvard Square, but by the time he got there, her bedroom door was closed and a note said, "Sorry, change of plans," so he slept on the couch. The next morning he woke up to find Bob Dylan in her shower.

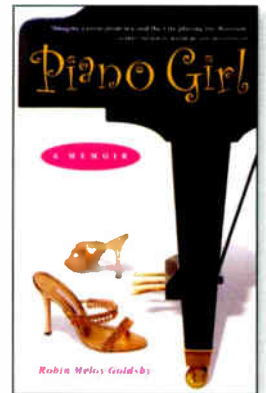
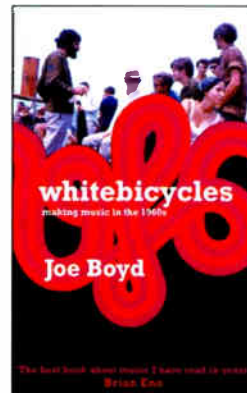
His first job out of college was as a tour and production manager for George Wein, creator of the Newport Festivals. He got to work with—and baby-sit—such legends as Coleman Hawkins, Stan Getz, Muddy Waters, Elvin Jones, Joan Baez and Joni Mitchell. He was onstage at Dylan's famous electric set at Newport in 1966, where he had to mediate between those festival board members—including Pete Seeger and Theodore Bikel—who thought the music was way too loud and board member Peter

Yarrow—of Peter, Paul & Mary—who thought it was just right. Because the grinning Yarrow happened to be at the sound board at the time, he won.

Soon, Boyd became the head of Elektra Records' London office, where his first project was recording a new band called Eric Clapton and Powerhouse featuring Jack Bruce and Steve Winwood—but the sessions were never released. (A companion CD of Boyd's music can be found separately as an import from the UK.) Within a few months, he opened UFO, a subterranean club where London audiences got their first exposure to Fairport Convention, the Soft Machine, the Crazy World of Arthur Brown and the house band, a former blues outfit recently turned psychedelic who had named themselves after two obscure South Carolina singers: Pink Anderson and Floyd Council.

Boyd comes across as a truly nice guy who was in a lot of amazing places at just the right amazing times. He's opinionated, but never hits the reader over the head and relates some of the most outrageous sins of the industry without judgment. His writing is dry, intelligent and subtle, and often a page or even a chapter will benefit from a second look before you can fully appreciate his point. His view of the sex and drugs excesses of the era is similarly nonjudgmental: Yes, a lot of people he was close to were damaged or destroyed by drugs, but chemical stimulation was absolutely crucial to the creation of the music and of its audience. *White Bicycles* (the title comes from a social experiment in Amsterdam at the time that put free bikes out on the streets for anyone to use) is a gentle, funny, enormously informative tour of the '60s from someone who was *really* there—and really remembers.

Dylan figures even more prominently in the life story of Al Kooper. Kooper was a New York songwriter who played with a group called the Royal Teens ("Short Shorts") and had his first song recorded by age 14. Before he was 21, he worked with artists like Gene Pitney, Bobby



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World Radio History



Vee and even Pat Boone, and wrote "This Diamond Ring," which became a hit for Jerry Lewis' "thoroughly inoffensive white son," Gary. One day, he convinced a friend, producer Tom Wilson, to let him watch a studio session for *Highway 61 Revisited*. It was, as he puts it, "like getting backstage passes to the fourth day of creation." During one song, Kooper noticed the Hammond organ stool was empty, so he sat down at the instrument, which he had never played before, and fumbled through a six-minute take. On the playback, although Wilson tried to tell Dylan the organ track was no good, Dylan said, "Just turn it up." The track was "Like a Rolling Stone."

Kooper retells that story and many others—honestly and hilariously—in his *Backstage Passes & Backstabbing Bastards: Memoirs of a Rock 'n' Roll Survivor* (Watson-Guptill). Like Boyd, he was onstage at the 1965 Newport Folk Festival, playing behind Dylan, and has a similar story: The crowd wasn't booing because Dylan had gone electric; they were "going bonkers for an encore, as we had only played 15 minutes!" The band had met for the first time the night before and three songs was all they had had a chance to rehearse.

In the mid-'60s, Kooper founded the

The crowd wasn't booing because [Bob] Dylan had gone electric; they were "going bonkers for an encore, as we had only played 15 minutes!"

Blues Project, an all-Jewish New York band that combined folk, rock, blues and jazz, and had a major influence on pop music. His book answers the question of why the *Live at Town Hall* album doesn't sound like the concert at Town Hall that I remember attending: It was actually recorded at a college on Long Island, Kooper writes, "but 'Town Hall' sounded much better than 'SUNY at Stony Brook.'"

His next creation was Blood, Sweat & Tears, an even more influential group, and he made a brilliant first album with them but was ousted from the group before they went on to huge pop fame; his book pulls no punches in retelling the nasty personal

politics that predicated and followed his departure. He became a staff producer at Columbia Records, and in that capacity thought up the idea of getting "a bunch of proven rock players into the studio and just jam in a relaxed atmosphere." Thus was born the *Super Session* album, with guitarist Mike Bloomfield. (The two had met at the Dylan sessions.) "Bloomers" was supposed to be on the whole album, but after the first day of recording in Los Angeles, he just checked out of his hotel room and flew back to Chicago. After a frantic day calling every guitarist he knew, Kooper connected with Stephen Stills, and yet another legend was created.

Meanwhile, he got to play on albums by the Rolling Stones (French horn on the long version of "You Can't Always Get What You Want") and Jimi Hendrix; he discovered Lynyrd Skynyrd and The Tubes; and he produced records by Don Ellis, Nils Lofgren, B.B. King and Dylan. He was music director for Ray Charles' 50th-anniversary TV special and relates what happened when the producers asked the star to perform the "Uh-Huh" song from his Pepsi commercial on the program. "I get *paid* to do that song," he quotes Charles. "Pepsi pays me to go all over the world and do that song. Why in the f*** would I just want to do that

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song for nuthin'?"

Kooper writes candidly about his struggles with domestic and professional relationships, with corporate types and with drugs, and many of his stories are real eye-openers, even to those of us who think we've seen everything, from when his bandmate Steve Katz slammed a car door on Clapton's hand, to when he comped together (pre-Pro Tools) a great B.B. King vocal to King's amazement, who said, "How did you do that? I don't even *know* this song yet!"

Today, Kooper lives a couple of miles from me in Somerville, Mass. He moved to the area when he took a job at Berklee

College of Music, but has since retired from teaching because he is suffering from vision problems. He can still play great, and I heard him not long ago kick butt with his band The Rekooperators, which he calls "probably the best band I've ever been a member of."

Backstage Passes & Backstabbing Bastards was published in 1998—it was actually an update of Kooper's original *Backstage Passes*, written in 1977—but, sadly, it is currently out of print and copies of it are going for \$100 and up online. However, you can find it in a lot of local libraries, and next year—"if all goes well," Kooper

says—it will be re-issued, complete with a live-performance DVD. It will celebrate the 50th anniversary of his first gig, an all-nighter at an upstate hotel, from which he returned just as his father was leaving for work. He describes the look on his father's face as: "Your son has been lobotomized by Martians carrying electric guitars. He'll never be the same again." Amen.

My last suggestion is not from anyone famous, but the author's stories—and she is a wonderful storyteller—will strike close to home for anyone who's ever played a gig. It's a completely different perspective on how one can make a living from music, and as it's too late for the majority of us to become 1960s rock 'n' roll producers, it's certainly a more realistic one.

Robin Meloy Goldsby's career started with the kind of "Eureka!" moment many of us have had: As an 18-year-old aspiring actress and pianist from Pittsburgh working on her summer break as a waitress on Nantucket Island, she discovered she could earn more money and be much happier playing background music in a cocktail lounge. The fact that she's been able to do so for 30-plus years is the subject of her 2005 memoir, *Piano Girl* (Backbeat Books).

After she finished college, she went off to New York City to try out for the stage and her experiences read like a bad novel: "Why don't they just say, 'Thank you, Miss, but you suck.' We know that's what they're thinking," she said to herself after a string of painful auditions.

She finally got a break in a touring burlesque show, but with one complication: In Boston (actually, suburban Framingham at an upholstered toilet called the Château de Ville where I once had the misfortune of performing), she was expected to strip while playing. Worse still, she discovered on opening night that there were two large policemen with dogs in the wings—ready to arrest everyone onstage if the lighting technician didn't black out at exactly the moment she played a glissando and whipped off her bra.

Eventually, she worked her way up to high-class New York hotels like the Grand Hyatt, where she entertained regulars like The Booger Lady, "who blows her nose so hard I think one of the trains from Grand Central is pulling into the lounge," and the Park Central, where she picked up a stalker who scared the hell out of her before the security team beat the crap out of him.

Goldsby, who describes the unreal ambience inside the Midtown Manhattan hotel with stunning accuracy, was affected by this curse right from the beginning: The management had installed "dozens of giant ficus trees, rumored to have cost tens of

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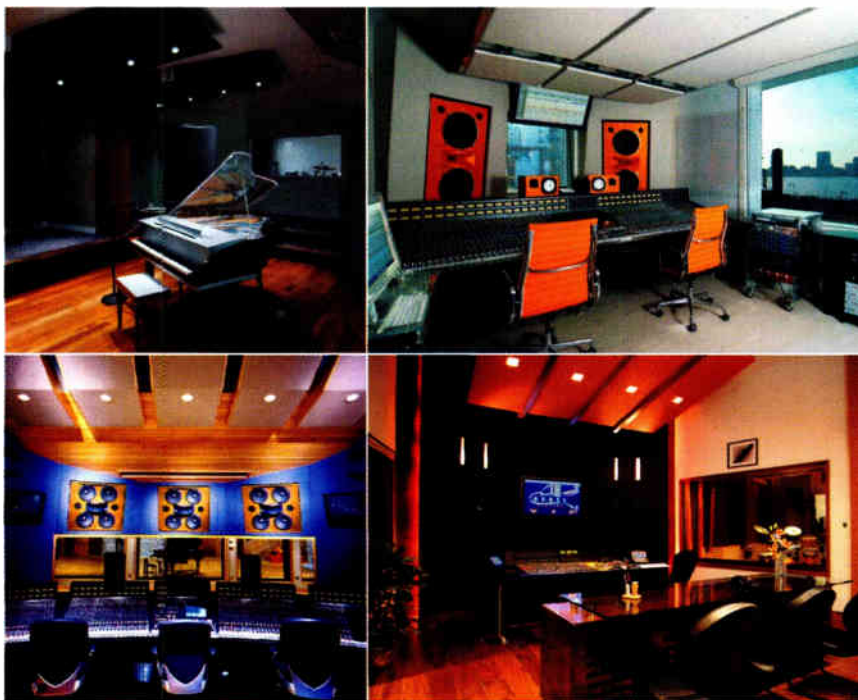
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thousands of dollars apiece, to form a green umbrella over the Atrium Lounge” where the piano was located. “Two weeks after we open, they begin shedding leaves. Autumn in New York. The falling leaves drift by my piano, and they aren’t red and gold. They’re brown and dusty, and they land in the piano and crunch when they bounce on the strings.” Eventually, they were replaced with artificial plants. “Another ficus crisis averted.”

One day, she showed up at work and noticed part of the lobby was blocked off. Her manager hustled her to the piano and told her to start quickly, “so that the guests don’t notice the dead body behind the black curtains. A traumatized waitress tells me that some poor soul has thrown himself from one of the sky-high balconies into the pit of shedding ficus.”

Along the way, she accompanied fist-fights, heart attacks, a priest going into diabetic shock and a patron choking on a pancake—and she was the only one around who knew the Heimlich Maneuver and thus saved his life. She met a man with no arms who showed her how beautifully he played the piano—with his feet.

She never wanted a concert career—she had a panic attack during a recital in college—but was always perfectly comfortable playing behind conversation and clinking glasses. But she has played in public far more than most concert pianists, and she got to travel, too: Hawaii, Brazil and Germany, where she now makes her home.

The book is peppered with some wonderful interior dialogs, usually between what she calls her “Voice of Reason” and her “Voice of Doom.” She also recounts valuable advice that her father, a professional drummer, gave her like, “Always carry a roll of duct tape and an extension cord with you because with those two items, you can solve virtually any problem.” And, “Remember, you’ll get fired from every job you have. Don’t take it personally.”

Piano Girl doesn’t have the celebrity dirt or rock ‘n’ roll attitude of Kooper and Boyd’s books, but it’s a charming look into the real life of a performer who has done quite well in one oft-ignored corner of the music world, and has enjoyed herself all the way. As long as you don’t crave worldwide fame and the mindless adulation of millions of screaming teenagers, what more can you ask for from a career? ■

Paul D. Lehrman is a musician, producer, filmmaker, writer and the coordinator of music technology at Tufts University. His book, The Insider Audio Bathroom Reader, also makes good beach reading.

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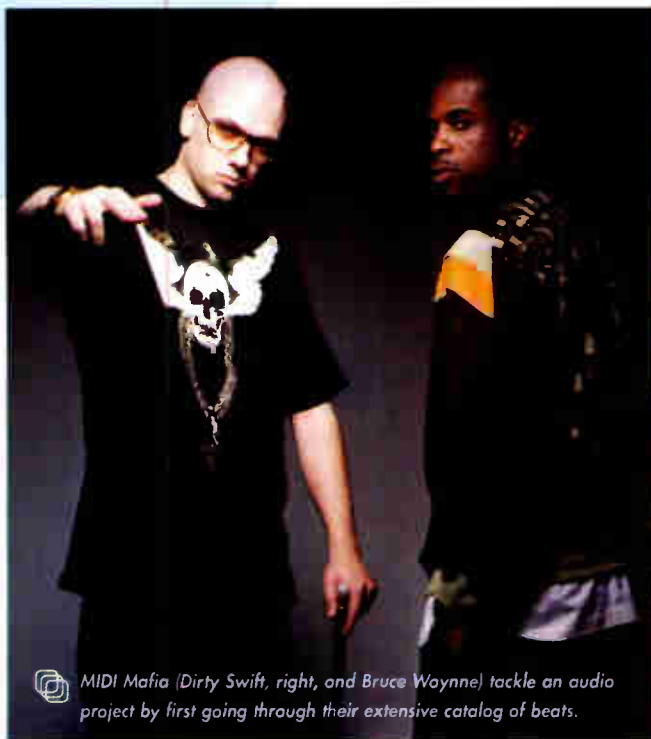



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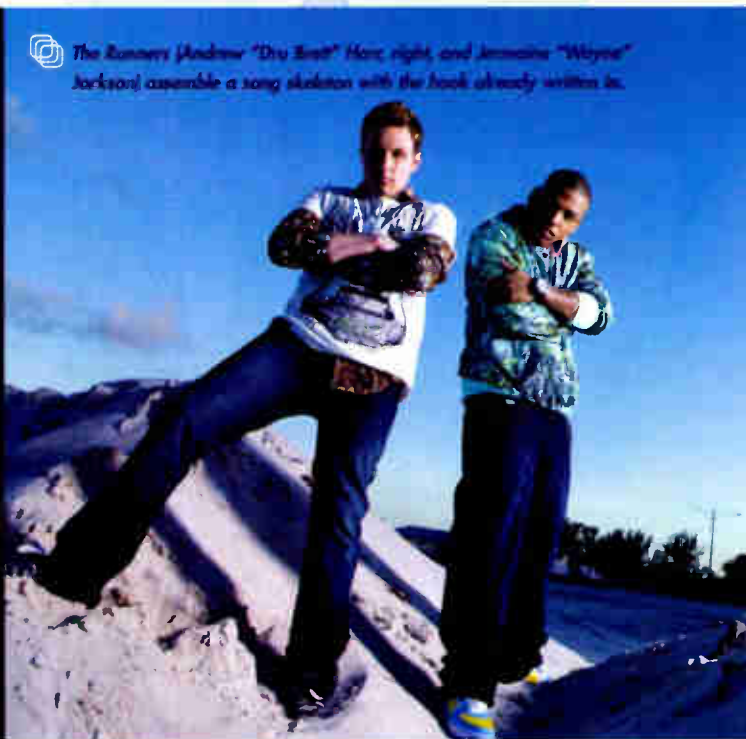
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 MIDI Mafia (Dirty Swift, right, and Bruce Wayne) tackle an audio project by first going through their extensive catalog of beats.



 The Runners (Andrew "Dru Beat" Hart, right, and Jerome "Wayne" Jackson) assemble a song skeleton with the hook already written in.

Those of us who grew up playing in bands and working with pop, rock or country songwriters are most familiar with the traditional process of producing a song—where the songwriting, pre-production, arranging and tracking each happen at different times and often in different places. But now we're seeing a more homogenous process coming from the hip hop and rap scene, and branching into pop, R&B and other rhythm-based genres, where songwriting is increasingly becoming a

part of the beatmaking process.

Before the widespread use of today's digital production and distribution systems, hip hop or rap producers used to shop beats on cassette, CD or DAT in a highly informal manner, scribbling a phone number on the cases and passing them out to A&R, management and friends in high places. Artists would then, presumably, audition the tapes, pick a beat and write a song to it. Under this scenario, producers often worked without artist input, creating dozens of beats in the hope that some-

body would like what they heard and give them a call.

CONVERGENT PROCESSES

Today, rather than being traded or sold like commodities, grooves are custom-built and ideas are mostly developed by the artist/producer relationship in the studio. But the level of the artist's involvement and at what stage depend on a number of factors.


Typically, in pop or R&B, the producer works with songwriters tailoring music and lyrics around the artist's persona. For

hip hop, it's slightly different: Most rappers pride themselves on writing their own music and only the hook may result from collaborating with the producer.

According to Justin "Just Blaze" Smith—the down-to-earth super-producer from New York City who gained notoriety producing such heavyweights as Snoop Dogg, Usher, Busta Rhymes and many of Jay-Z's Roc-a-Fella records—rap has risen from being strictly a pre-fab process to one of more ebb and flow. "That's ideal, the way I prefer it," Blaze says. "I'll want

SONGWRITING AND BEATMAKING FORM A BLURRED LINE IN HIP HOP, POP AND R&B

By Jason Scott Alexander

 J.R. Rotem enjoys when an artist brings in an idea or concept as a catalyst to jump-start the session.



to get my beats to a certain level and the artist will want to do the same, so we find common ground and start bouncing ideas off each other."

Physically, though, Blaze likes to complete the first round of beatmaking on his own before bringing his ideas to the artist—even if it's just a matter of them hanging out in the lounge or watching some TV. "Anybody who's artistic will understand me when I say it's a little hard to create something with a person right over your shoulder," Blaze adds. "Sometimes you just need to get to a

certain point before you want anybody's input."

Similarly, Orlando-based production duo The Runners—Andrew "Dru Brett" Harr and Jermaine "Mayne" Jackson—achieve their trademark measured-and-screwed sound by producing a beat with the hook already written into the music to grab the artist's attention. Then an artist or a team of songwriters will come into the studio to write choruses or verses. Even though the whole song may be written between producers and songwriters during pre-production, The Run-

ners are always conscious to leave plenty of space for artists to explore their own creativity once they show up.

"Like with Beyoncé, she prefers to put in her own ad-libs and backgrounds. So, for her, we wouldn't have the songwriter put anything in there," Mayne says.

"And it's amazing how much the songwriting is such a big part of the production now," adds Dru. "It's almost like a 50/50 thing, where we'll have a hot beat to start with, but the right songwriting with pre-production can take it to that hit level."

The Runners usually present a song that already has a chorus, but when working with certain rappers who are established songwriters themselves, like T.I., Akon or T-Pain, Dru and Mayne know enough to leave the hooks up to them. That's how "We Do This" came to life for T.I. on his highly anticipated fifth album, and this summer's blockbuster release, *T.I. vs. T.I.P.*

"We were at Hit Factory down in Miami working on a couple beats specifically for him," recalls Mayne. "T.I. was scheduled to be in at 6 o'clock

and it's noon. A couple hours passed and we still had no beats, so we just chilled. About an hour before T.I. was supposed to arrive, we started with the drums and a basic Clav riff. I actually went into the booth myself and started laying down layers of harmonies, EQ'ing them to make myself sound like an old choir, you know? Then when T.I. came in, we played him the beat we just made, and it only took him about 15 minutes of vibing to it over the mains and he went right into the booth and laid down the chorus. No paper, no pen, no nothin'. Everything's in his head, on the spot."

With much of his songwriting happening with pre-production, T.I. came back out after laying the hook and The Runners looped the verse portions of the beat in Pro Tools so that he could develop lyrics in his head. After 10 minutes, the first verse was recorded.

"T.I. took a break and was eating in the lounge of the F room at Hit Factory, and we continued working on pre-production," Mayne adds. "We had it up loud in the studio and somebody opened the studio door to the lounge. When he

Production Construction

heard it, he came right in and did the same thing—vibed for about 10 minutes, went in, laid the chorus, came back out, we looped the verse portion of the beat for him again, and he went right back in and finished the whole song within an hour. And that's one of his biggest records on his album."

BRAINSTORMING

Whether it's talent they've already worked with on several hit records or an artist who's completely new to them, rap and hip hop producers tend to approach each song in a relatively similar fashion. The Runners start by trying to get in the artist's head about the direction and the sound.

"Do you have your album on you?" Mayne figuratively asks. "Let's see what you're missing. How far along are you? Do you have a single? If so, let's hear it because we wanna beat it out." Beating out singles has become a fierce game within the urban-production scene.

"What the labels are trying to do is even the super-producers out and fill the rest of the album with a bunch of producers they can get for a cheaper price," explains Dru. This competitive edge, combined with the fact that production budgets are shrinking thanks to plummeting album sales, has led many labels to encourage—even force—artists to work from a producer's stash of beats rather than build beats from the ground up.

Bruce Wayne and Dirty Swift, aka MIDI Mafia, start by going through their extensive catalog of beats and playing as much as possible for the artists, either to hook them in or to see what they gravitate toward. An artist may love something in particular and open that session file to build upon, or nothing will immediately tweak the ears and the boys will have to start from scratch. "Sometimes they might react to something you didn't expect," says Swift. "Fantasia, for instance: 'When I See U' [the Number One single from her second album, *Fantasia*] wasn't the first thing we thought she'd wanna cut." But while she was tracking vocals, Wayne and Swift developed a clearer picture of what Fantasia was all about and began tailoring beats around her persona, fostering an integrated songwriting/production relationship with the artist in the studio.

"She'd be cutting vocals in one room, and we'd have a couple songwriters working in another room, running back and forth and kinda just doing things simultaneously," Swift

explains. "Without getting crazy, you wanna maximize the time you have with them. If we can write a song and sell another record, then we try to do as much as we can."

Even producers like Blaze—who are familiar with the near blank-check approach to some sessions—are witnessing much more of a blurred line between songwriting, sound design, pre-production and arrangement. "I was just in the studio with Mariah Carey last night," says Blaze, "and you know, our process is basically I'll play her a few skeletons—which are just basic ideas, drum patterns, light melody or what-



Producer/songwriter Ryan West is also chief engineer/production assistant to Just Blaze.



Just Blaze prefers an "ebb and flow process" in rap production, bouncing ideas off artists in the studio.

ever—and she'll start singing or humming something to herself. And either myself or one of my musicians would start playing along with her on top of the skeleton and we just build it from there."

With a versatile musical background that includes classical and jazz piano, Hollywood-based super-producer J.R. Rotem

enjoys it most when artists come with an idea or concept that can act as some sort of catalyst for a session. Because he's comfortable in many genres, Rotem says his options are almost infinite, and therefore prefers to hone in on some sort of structure. He's also careful not to let his creative license go over the heads of what an established fan base, or radio, expects.

"I'm trying to make the most commercial records I can, the ones that are going to hit the widest audiences," Rotem says. "It has to be accessible, and a lot of times a familiar melody, sample or a melodic sensibility is what pulls people in. I think a combination of that is what makes an amazing song."

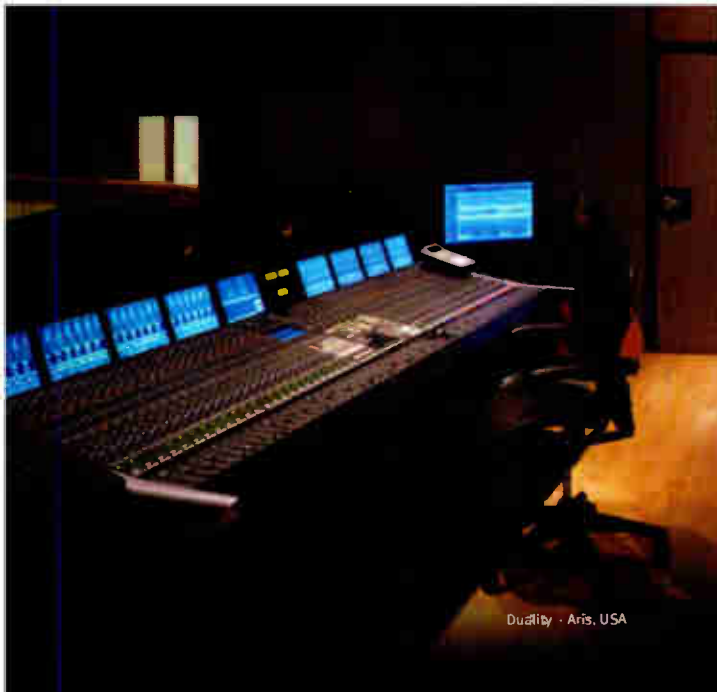
Perhaps there's no better example of this from Rotem's vault of hits than "Beautiful Girls," this summer's blockbuster single from 17-year-old Sean Kingston from Jamaica. Kingston is the first artist signed to Beluga Heights, which is owned and run by J.R., along with younger brother and label A&R Tommy Rotem.

"We were in the studio doing some tweaks to another song and feeling kinda uninspired," recalls Rotem. "Sean was in the kitchen of the studio, I was in the control room, and he came running in saying, 'Hey, what's that song, 'Stand by Me?'" Mary J. Blige was in there with him from another session, and I guess it was playing on the radio on some oldies station. Having just turned 17, Sean obviously didn't know the song that well and asked if anybody ever flipped it before. I said, 'No, I don't think so. Let's do something!'"

Rotem immediately bought the song on iTunes, unsure of whether he'd sample directly or interpolate from it. After programming a basic beat around a sample of the familiar bass intro, he added instruments to bring out the 1950s-era sound, such as sweet string pads and Celeste, which reminded him of "Mr. Sandman."

"To be honest with you, the process of the track was very, very quick," Rotem says. "It was like five, 10 minutes—just feeling it and building it up. Sean started singing the chorus, and right off the bat I could tell the vocals were matching the track, but the fact that he says 'suicidal'...I mean, the whole song sounds kinda pretty and dreamy, then there's this real edge. So I was like, 'Wow, we have it.'"

With the track looped up, Kingston was so inspired that he asked to be left in the



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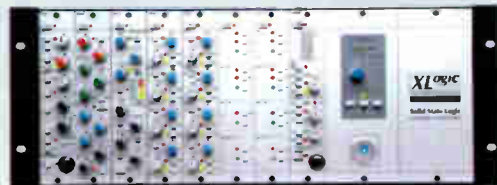
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room where, within half an hour, he came up with all the verses. Rotem and Kingston continued back and forth with production and writing in doo-wops, and by the end of the evening the song was finished—a completely collaborative process.

EXTREME WORK HABITS

Top hip hop and rap producers generally work at breakneck speed in the studio anyway, but with financial pressures upon them from labels due to slumping album sales, they've learned to streamline their production process and become more innovative with new technologies.

Comfortably seated in his B room, the private pre-production temple at his SSL-equipped Baseline Recording Studios in New York City, Blaze often prepares for sessions by scouring his collection of more than 12,000 vinyl records, sampling snippets into his Akai MPC 4000, rackmount MIDI modules or software samplers for beat programming. Either way, he tracks everything into Pro Tools, as he prefers to keep things in-the-box very early on.

Ryan West, a producer/songwriter, and chief engineer and production assistant to Blaze for the past four years, explains the hectic pace at which he and Blaze typically work, using "Show Me What You Got" off Jay-Z's 2006 comeback album, *Kingdom Come*, as an example.

"We were out in L.A. working at Westlake Studios, which was built for Michael Jackson by Quincy Jones for the *Off the Wall* record, so it had this incredible vibe to it," West says. "Prior to Jay-Z's tracking session in New York, Just and I started formulating ideas and coming up with beats. We had two laptops with Pro Tools LE, plus the main Pro Tools HD system going in the main control room. Just brought in this local working band from L.A. called 1500 and gave each of its members our sample-based beat, basically letting them go to town on it. He'd asked them for specific things like Rhodes parts, B3 parts or a straight-up piano, or whatever. One kid was a drummer, so I was working with him recording live drum overpasses while these other two guys were sitting out in the lounge with these little MIDI or USB keyboards hooked up to a laptop running virtual instruments and adding parts to the track. Meanwhile, Just was splitting around, directing traffic and controlling what's going on in the studio."

Tracks in hand, the pair returned to New York where Blaze did some additional pre-production on it with Jay-Z present. After bouncing ideas and formulating what he wanted to do lyrically, Jay-Z entered the booth and spit out his vocals in one take.

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"The mix process was fairly interesting, too," continues West. "We actually mixed most of that in-the-box in Pro Tools in Just's B room. We ended up mixing it down to stems so he could put it on one of his laptops because he was on his way to Japan to do a gig. He actually finished mixing the stems on the plane."

Blaze uses such plug-ins as Native Instruments Battery, Luxonix Purity or IK Multimedia SampleTank, building skeleton sequences on his laptop to save and build upon when he gets back to the studio. "For travel, I've been checking out Ableton Live lately, which I think is a little more straightforward in terms of just pre-production than Pro Tools," Blaze says. "On my next round of albums, it's going to be a very big piece of what I do."

MIDI Mafia splits studio duties pretty much straight down the middle. Sharing equally in the track-making process, Wayne handles the songwriting while Swift handles engineering. "We're soup-to-nuts guys," says Wayne. "I'll go in the studio with someone and start the record—whether it's R&B, pop, rap, whatever—to get the flow going. Our approach is very old-school, just with new technology. We embrace technology from Pro Tools to FTP server because we're bi-coastal; I'm in New York sometimes, but Swift's in L.A. and back and forth." Swift adds that they're looking at eventually upgrading to Digidesign's DigiDelivery system.

Tag-teaming in this manner led to one of the duo's most notable productions this summer for Jennifer Lopez. Originating from a catchy sample that Wayne stumbled across, he began to write sketchpad ideas using Spectrasonics Trilogy for its wealth of dance sounds. But coming up with a bridge proved elusive, so he went straight into the studio with a reference singer and a co-writer, and together they wrote a melody to drive the whole song based on his groove.

"Once I finally got the bridge down both lyrically and melodically, we went back in, got with Swift and musically just took out the original sample and built everything over with different chord changes," Wayne recalls. "Altogether, it took us a solid week to do. Then we played it for J-Lo, she loved it, and it looks like it's gonna be her first single on her English album. It really launched the whole project, and we set the tone for the album."

For Rotem, the tangibility of zipping around a keyboard that he's familiar with makes his Yamaha Motif ES the first thing he'll head for when cutting a new groove. Though slowly getting into soft synths such as Synthogy's Ivory or IK Multimedia's

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Production Construction

Miroslav Strings, he mainly uses them to double or replace parts initially done on one of his many keyboards. From his own room at Chalice Studios in Hollywood, Rotem concludes that he really hates to travel—feeling at his best and preferring to do tracks from this “comfort zone”—so being able to pick up and go isn’t something he worries about.

Nothing could be more different for jet-set The Runners. “We had a special case built by Nashville Custom Case, and it’s actually a rackmount that fits our [Mac] G5 and all our rackmount synth gear in one box,” says Mayne. “We’re really new-school, so everything’s digital and soft synths with us. We started with the MPC way back, but we always sequenced in Pro Tools.”

That isn’t to say that The Runners’ sound—which is largely that of live recorded instruments and trademark custom drum samples—doesn’t come from organic sources before eventually ending up in Native Instruments Battery for beat programming. “Actually, I’m giving away a big secret right here,” Mayne says. “When we track our drums, we run everything through the SPL Transient Designer. Most people use that SPL in the mixing process, but we like our drums to sound a certain way, so we’re using it up-front in the pre-production process.”

CELEBRITY STATUS

Typified by the likes of Puff Daddy, Pharrell and Kanye West, the early class of urban super-producers paved the road that we ride today, where premiere beatmakers are jumping the console to share sticker space with the artist on the front of CDs. Though producers have always been key to musical success, they’re increasingly becoming stars in their own right.

“I think the rappers that are true stars are always going to be stars,” says Swift. “Nobody’s gonna outshine 50 Cent on a track because he’s just a star straight up and down. He knows how to write a hit record. But I think there are a lot of rappers out there who are kinda like one-single guys, so they’ll just find the hottest producer and just use that name to kinda boost their image.”

Blaze sees first-hand how music works in a club and on the radio, and maintains that a monster beat will steal the show every time. “I mean, when was the last time you heard a hit a cappella record?” he says with a laugh. “Off the top of my head, I can only think of Boyz II Men and Take 6. But when you have a good balance of catchy hooks and lyrical substance, then you have a career.” ■

Jason Scott Alexander is a producer/mixer/remixer in Ontario, Canada.

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THE SCIENCE BEHIND EFFECTS PLUG-IN EMULATIONS

By David Weiss

there's no denying gear lust. Audio engineers can be fanatical in their obsession with quality-built hardware. Cults have formed around vintage gear—those channel strips, EQs, compressors, delays and effects boxes that are the stuff of legend, heat-shooting rack units that sprinkled hit record “fairy dust” over everything they touched (provided the engineer knew the right way to tweak the knobs).

These days, engineers who seek the elusive sound of esoteric hardware have options in software emulations. But how is the essence of a classic compressor captured in software? What makes a virtual channel strip sound like the real

thing? We talk to the developers behind the plug-ins to find out what goes into modeling a unique hardware signal processor.

AN ANALOG EQUIVALENT?

In a culture that worships “classic” technology, audio plug-in manufacturers fight an ongoing battle against deep-rooted bias toward the “real thing.” “Emulation is a very hard task because there is an ongoing war between analog and digital,” says Mike Fradis, product manager of the SSL, V Series and GTR plug-ins at Waves (www.waves.com). “The product has to be really, really, really accurate to supply what people out

there want, and people are very critical when they try to compare analog versus digital gear.

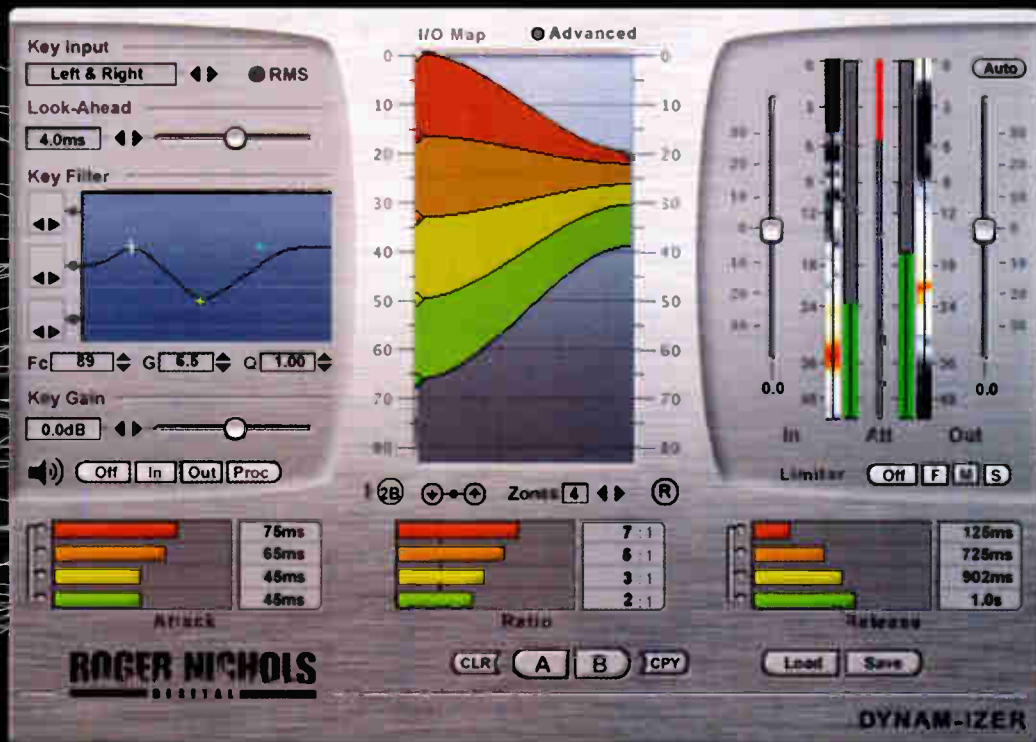
“Let’s call one side the ‘old-school’ commission—they’ll always prefer the analog version, and these are the people that you really want to convince,” he explains. “I think it’s a huge challenge, but the industry is starting to realize that it’s possible to do a really good job with emulations.”

At Universal Audio (www.uaudio.com), a company with its own extensive hardware legacy, developing software versions of classic units such as the 1176, LA-2A, Neve 33609, Pultec EQP-1A and Fairchild has been an exercise in careful

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MANUFACTURER	WEBSITE	EMULATION PRODUCT	PLUG-IN FORMATS	PRICE
Aphex	www.aphex.com	Aphex Aural Exciter and Big Bottom Pro	TDM HD Accel, TDM HD, TDM MIX, TDM VENUE (Windows XP only)	\$495 each
BBE	www.bbesound.com	Sonic Maximizer	DirectX (Windows), VST (Mac/Win)	\$129.99
Chandler Limited and EMI/Abbey Road	www.chandlerlimited.com, www.abbeyroad.co.uk	TG1 Abbey Road Special-Edition Limiter/Compressor	TDM HD Accel, TDM HD, RTAS, AudioSuite, Audio Units, VST	TDM (MAP, \$500; list, \$560), LE/Audio Units/VST (MAP, \$300; list, \$335)
Digidesign/ Bomb Factory	www.digidesign.com	Bomb Factory Classic Compressors Bundle: BF-2A, BF-3A, BF76 and Purple Audio MC77	TDM HD Accel, TDM HD, TDM MIX, TDM VENUE (Windows XP only), RTAS, AudioSuite	\$595 bundle
Digidesign/ Bomb Factory	www.digidesign.com	Fairchild 660 and 670 Bundle	TDM HD Accel, TDM HD, TDM MIX, TDM VENUE (Windows XP only), RTAS, AudioSuite	\$595
Digidesign/ Bomb Factory	www.digidesign.com	Bomb Factory Joemeek SC2 compressor and VC5 Meequalizer	TDM HD Accel, TDM HD, TDM MIX, TDM VENUE (Windows XP only), RTAS, AudioSuite	\$395
Eventide	www.eventide.com	H910 Harmonizer, H949 Harmonizer, Omnipressor, Instant Phaser, Instant Flanger, H3000 Band Delays, H3000 Factory, EQ45, EQ65	TDM HD Accel, TDM HD, TDM MIX, TDM VENUE (Windows XP only)	Anthology II Bundle (includes previously mentioned plug-ins, plus Eventide Reverb, Ultra-Channel, E-Channel, Precision Time Align, Quadravox, Octavox): \$1,195
Focusrite	www.focusrite.com	Forte Suite	TDM HD Accel, TDM HD, TDM VENUE (Windows XP only), RTAS	\$595
Focusrite	www.focusrite.com	Focusrite d2 and d3 EQ	TDM HD Accel, TDM HD, TDM MIX, TDM VENUE (Windows XP only), RTAS, AudioSuite	\$595
Princeton Digital	www.princetondigital.com	Reverb 2016	TDM HD Accel, TDM HD (Mac only)	\$699
Princeton Digital	www.princetondigital.com	Ursa Major Space Station SST-282	TDM HD Accel, TDM HD (Mac only)	\$499
PSP Audioware	www.pspaudioware.com	Lexicon PSP 42	Win VST, RTAS; Mac OS X Universal Binary Audio Units, VST, RTAS	\$149
Serato	www.serato.com	Rane Series: graphic EQ, parametric EQ, dynamics (C4 Compressor, G4 Gate)	TDM HD Accel, TDM HD, TDM VENUE (Windows XP only)	\$699 each
Solid State Logic	www.solid-state-logic.com	SSL LMC-1	Audio Units, VST	free
Solid State Logic	www.solid-state-logic.com	Duende (SSL Channel Strip and Dynamics, SSL Stereo Bus Compressor)	Audio Units, VST, RTAS (via included FXpansion VST-RTAS)	\$1,999
Sonnox	www.sonnoxplugins.com	Oxford EQ	TDM HD Accel, TDM HD, TDM MIX, TDM VENUE (Windows XP only); AudioSuite, Native (Audio Units/RTAS/VST); PowerCore	TDM, \$891; Native, \$360; PowerCore, \$630; Oxford EQ with GML option, \$1,215; GML option for EQ, \$396
TC Electronic	www.tcelectronic.com	DVR2 digital vintage reverb for PowerCore	VST, Audio Units, RTAS (via FXpansion)	\$495
TC Electronic	www.tcelectronic.com	DVR2 digital vintage reverb for TDM	TDM HD Accel, TDM HD	\$745
TC Electronic	www.tcelectronic.com	Tube-Tech CL 1B for PowerCore	Audio Units, VST, RTAS (via FXpansion)	\$745
TC Electronic	www.tcelectronic.com	Tube-Tech CL 1B TDM	TDM HD Accel, TDM HD	\$995
Universal Audio	www.uaudio.com	Roland Dimension D	Audio Units, VST, RTAS (Mac/Win)	\$149
Universal Audio	www.uaudio.com	Roland RE-201 Space Echo	Audio Units, VST, RTAS (Mac/Win)	\$249
Universal Audio	www.uaudio.com	BOSS CE-1 Chorus Ensemble	Audio Units, VST, RTAS (Mac/Win)	\$99
Universal Audio	www.uaudio.com	Helios Type 69 EQ	Audio Units, VST, RTAS (Mac/Win)	\$199
Universal Audio	www.uaudio.com	Neve 1073 EQ	Audio Units, VST, RTAS (Mac/Win)	\$249
Universal Audio	www.uaudio.com	Neve 1081 EQ	Audio Units, VST, RTAS (Mac/Win)	\$249
Universal Audio	www.uaudio.com	Pultec Pro	Audio Units, VST, RTAS (Mac/Win)	\$79
Universal Audio	www.uaudio.com	LA-3A	Audio Units, VST, RTAS (Mac/Win)	\$149
Universal Audio	www.uaudio.com	Fairchild 670	Audio Units, VST, RTAS (Mac/Win)	\$149
Universal Audio	www.uaudio.com	Neve 33609	Audio Units, VST, RTAS (Mac/Win)	\$249
Universal Audio	www.uaudio.com	1176LN	Audio Units, VST, RTAS (Mac/Win)	\$149
Universal Audio	www.uaudio.com	Plate 140	Audio Units, VST, RTAS (Mac/Win)	\$149
Universal Audio	www.uaudio.com	Neve 88RS	Audio Units, VST, RTAS (Mac/Win)	\$299
Universal Audio	www.uaudio.com	LA-2A	Audio Units, VST, RTAS (Mac/Win)	\$149
Waves	www.waves.com	SSL 4000 Collection (G-Master Bus Compressor, E Channel, G Equalizer)	TDM HD Accel, TDM HD, RTAS, AudioSuite, VST, Audio Units, DirectX	TDM, \$1,600; Native, \$800
Waves	www.waves.com	V Series (V-Comp, V-EQ3, V-EQ4)	TDM HD Accel, TDM HD, RTAS, AudioSuite, VST, Audio Units, DirectX	TDM, \$2,000; Native, \$1,000
Waves	www.waves.com	API Collection: 550A 3-band EQ, 550B 4-band EQ, 560 graphic EQ, and the 2500 stereo compressor	TDM HD Accel, TDM HD, RTAS, AudioSuite, VST, Audio Units, DirectX	TDM, \$2,000; Native, \$1,000

selection. "Our goal is to achieve a unit-to-unit emulation of the original hardware versions," says company VP of marketing Mike Barnes. "Even within hardware units, there are many variations on the original, so we seek out a 'golden' unit for reference considered to be the best of its kind. For example, the Fairchild we used is the one from Ocean Way Recording."

Barnes sees emulations as a big component of the democratization of audio technology. "Not only can you learn about classic records that were made with this device, now you can get the device yourself," he says, "and who knows what great things people will come up with today having those devices? They simply didn't have access to them before, but now young people coming into recording have a lot more experimental ideas about how to abuse gear than in the past."

When developers from Chandler Limited to Digidesign and TC Electronic set out to create their emulations, they are armed with more advantages than ever before.

"Emulation in software is really evolving very quickly," Waves' Fradis points out. "One of the most important things that enable us to do better emulations is that the world is moving into higher sample rates. In emulating an EQ, for example, one of the biggest problems is the need of sharp anti-aliasing filters at the low sample rates of 44.1 or 48 kHz that bring the filter very close to the human audible range of 20 or 22 kHz, and sometimes lower. You really have to deform the curve at these sample rates to fit it onto an analog curve; working at the higher sample rates of 88.2 or 96 kHz will move the anti-aliasing filter toward 41 or 48 kHz and farther from the audible range rather than 22 kHz. This all relates to the Nyquist Equation, which says to sample certain cycles, you need twice the sampling rate. With the higher sampling rates, we'll no longer have to cut really hard at 22 kHz."

Fradis also points out the obvious benefit of faster computers with huge amounts of processing power, citing double-precision calculations and the "ability to perform in real time other calculations that were previously too demanding for CPUs that existed on the market."

"Third," Fradis continues, "and this is the key to all emulations, is believing that you do not have to compromise in translating analog hardware to digital. The digital world can make it sound identical. It's possible! I really believe that we should stop thinking about the digital world as a

crippled animal in the music industry: It's capable of anything the analog world is capable of."

THE DESIGN APPROACH

Not surprisingly, different developers have multiple methods for taking on the painstaking project of making software that sounds identical to hardware. Tony Agnello of Princeton Digital ([www.prince](http://www.princetondigital.com)



tondigital.com)—who has the distinction of having created both the original version of a digital hardware box, the versatile SP2016, and its software emulation for his company and Eventide (www.eventide.com)—offers two possible approaches.

"One way people are emulating older products is by performing a measurement of the system," he says. "In other words, you can excite a system under test, analyze its impulse response with tools like FFTs and spectrum analyzers, and then re-create it as software. There's a distinction between that process, which works very well for a linear analog device such as a preamp, and actually re-creating the algorithms of a digital effects box, as I did for the SP2016. In that case, all of the digital signal processing blocks were re-created to achieve the emulation."

"The SP2016 presented an interesting challenge in that virtually none of the documentation for the algorithms existed. I took a 2016 and a logic analyzer, connected hundreds of little clips to various places, had schematics, looked at all the little bits being toggled and re-created algorithms from 20 years ago. If you're a good detective, you can re-create what you did, although that's certainly doing it the hard way! But now the guys who had been bugging me to do this, like George Massenburg and Ed Cherney, are all using these reverb algorithms in Pro Tools. They sound quite a bit like the original—and they should because the algorithms are identical."

Universal Audio identifies the procedure by which they execute their emulations as a "virtual circuit," created from the schematics of the actual hardware unit. "Most companies only work from a signal-measurement model, but that doesn't tell you about any of the circuit chaos or nonlinearities that would come through distortion of the circuits," Barnes says. "For example, the 1176's All Button

mode that occurs when you press all of the buttons on the front of the compressor is signal-dependent behavior; you couldn't model that on all-measurement, but when you present that in the digital circuit model, it recreates that perfectly. It takes a lot more time to do it that way and it's a lot more complex, but we feel the resulting emulation is significantly closer to the actual hardware unit."

No matter what the approach, an almost superhuman obsession with detail is needed to ensure that the virtual version's performance matches the physical one, taking into account every possible combination of settings that the user could dial in, with the charming signal quirks that are often the stamp of a lovingly preserved processor. "The minute we decide on a unit, we get it in-house, start measuring every possible behavior that we're aware of and analyze the best way to translate it into the digital world," says Fradis. "Nothing is trivial. I might spend a month with the unit, playing with it every day and looking for every anomaly in the hardware. You have to be accurate, picky and not put anything aside. Once we know the behaviors, we have our ways of transferring those observations into the digital domain."

In most cases, software developers find it best to re-create the graphical user interface as faithfully as possible, even if the original hardware faceplate may have been defined by circuit topology. "In the Eventide Legacy bundle, the GUI is the front panel," says

Agnello, referring to emulations of such Eventide boxes as the Omnipressor, Instant Phaser, H910 and H949. "We have light shining on the black anodized knobs, there's glare on the glass of the VU meter and we took care to make the ballistics as close as possible to the real world. If people are looking for re-creation, our feeling is to give them what they had, one-to-one."

"A lot of our clients are old-school engineers, and they're used to placing knobs in a certain position to get a certain sound," Fradis adds. "We want them to be able to do the same in the plug-in."

PUTTING PLUG-INS TO THE TEST

Once the emulation is completed, it becomes time to open it up, cautiously, to a wider circle for evaluation. "As soon as it has passed all the blind tests where it can't be picked out as being different from the hardware, we know we've achieved our goal," says Universal Audio's Barnes. "We have two tiers of internal testing. One is internal QA, where we have our own team of Mac and PC guys looking for reliability and OS/DAW compatibility, and the other is a separate group that is monitoring the sonic authenticity against the original.

Once we're satisfied internally, we take a beta group of trusted users under NDA who get to beat on the products in their own environment, and they'll give us real-world feedback. Then release candidates are tested one last time by the group, and if the plug-in is good, we'll release it to the Web."

Sometimes, however, the approval process is a little less formal. When Sonnox (www.sonnoxplugins.com, formerly Sony Oxford) created its emulation of the GML 8200 EQ, the company's focus group comprised solely Oxford Digital co-founder Paul Frindle and the ultimate authority on the box, Massenburg. "George flew out to Oxford [England], he and Paul locked themselves together in a room for three days and listened to it," recalls Sonnox managing director Rod Densham. "George would make suggestions such as, 'This sounds a little too harsh, let's change the algorithm,' and at the end of three days they had it."

While virtual replicas of many of the most beloved hardware boxes are now on the market, many more still remain to be converted. In deciding which products to tackle, software developers reveal that the process is a highly scientific popularity

contest. "It's a lot of research and statistics, talking to engineers and producers to figure out what piece of hardware people want to start using in the digital domain," Fradis states. "If we come up with three top hardware units, we may just do one immediately, but in the future we'll definitely do the other two. The more linear a device is, like an EQ, the easier it is to model. The more nonlinear and distorted it is, like a compressor, the harder it is to model, and solid-state is harder to model than tubes."

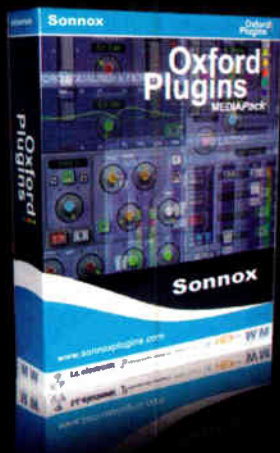
For Universal Audio, the near-future prospect of adding re-created vintage synths and stomp boxes to its offerings just adds to a body of work that makes the act of emulating worth all the hard work. "[Universal Audio founder] Bill Putnam Sr.'s motivation was to build products that were solutions to studio problems," Barnes says. "We want to continue that philosophy. Just because some of these products are 30 years old doesn't mean that they're not ideal for a particular task—the classic design is sometimes still the best thing for the job." ■

David Weiss is Mix's New York editor.

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Roger D'Arcy

Studio Design With European Flair

Meet Roger D'Arcy, international man of studio design. The founder of the UK-based firm Recording Architecture (www.aaa-design.com), which is celebrating its 20th anniversary this year, and Black Box Acoustic Conditioning Systems (www.blackbox-design.com), D'Arcy has built up an impressive list of credits since building his first studio, London's Turnkey Two, in 1984.

While he is still an emerging presence on the U.S. scene, D'Arcy has established himself as one of the most in-demand designers over much of the rest of the globe. Thanks to his sharp ears, flexible acoustic approach and riveting visual sense, he has created high-impact private and commercial spaces for recording, mixing, mastering, post and education in all sorts of locales, from Spain to Saudi Arabia; he also has a quickly growing fan base in the heavy production center of India's Bollywood. His notable clients include the likes of Abbey Road, EMI Music, Crystalphonic, Optimum Mastering, Annie Lennox, The Cure, David Gray and Lenny Kravitz.

With the move to smaller rooms such as producer-owned studios, music is being produced differently. As a designer, how do you advise your clients when planning these rooms? What do you need to know about the music that will be produced there?

In the control room, the only thing we need to know about the music being produced is whether they're principally recording for CD music in stereo or discrete 5.1 formats. Whether it's rock, drum 'n' bass—doesn't matter; what matters is the provision of a live area. Do we provide any live area whatsoever for use of live microphones in the space? One example is Annie Lennox: She's perfectly content to sing in the control room with a directional mic. But there are also producers who want to record a big, expansive drum set, in which case we have to provide a much higher level of sound isolation and more diffuse open sound.

The biggest misconception people make in vocal booths is to make them far too absorptive at high frequencies. You can't achieve what you want just by sticking acoustic foam on the walls—you have to pay more attention to lower and high-mids. Sound is fundamentally a pressure wave that is frequency- and wavelength-dependent. At 100 Hz, the wavelength is more than 11 feet long, so sticking a piece of carpet on the wall isn't going to affect 100 Hz. The danger is that by adding that, you're disproportionately affecting mid- and high frequencies.



Roger D'Arcy (left) with his Mumbai, India-based architect Vishal Shah

You're almost better off having a uniformly live ambient characteristic than you are having one that is disproportionately dead in the upper-register.

We've been dealing with smaller rooms since the outset, often [rooms] for artists. Unfortunately, the areas of cancellation are more pronounced and difficult to get away from in a small room; you're almost invariably sitting near the middle, and sitting in the middle of any parallel or square shape is no good, so the monitoring position becomes the position of maximum cancellation. Therefore, the smaller the room, the more careful you have to be with your acoustic design. That doesn't necessarily mean it's more expensive, but you probably do have to spend more per square foot. People who can do small rooms are the skilled acousticians.

Do you think these types of rooms are getting better? What advice can you offer to a producer reading this who wants to improve the acoustics, ergonomics or overall quality of his room?

It calls for an in-depth understanding of different techniques. The other thing with small rooms is that the affordability of equipment means that people's budgets are eaten up. They can buy the equipment, but they haven't thought of the room acoustics. People are not properly funded to get into the industry in the first place. They're encouraged to get in when they can afford the equipment, but at the end of the day, if you can't properly hear what you're doing, then you may as well work on headphones.

I mix on headphones! I know I shouldn't, but I also

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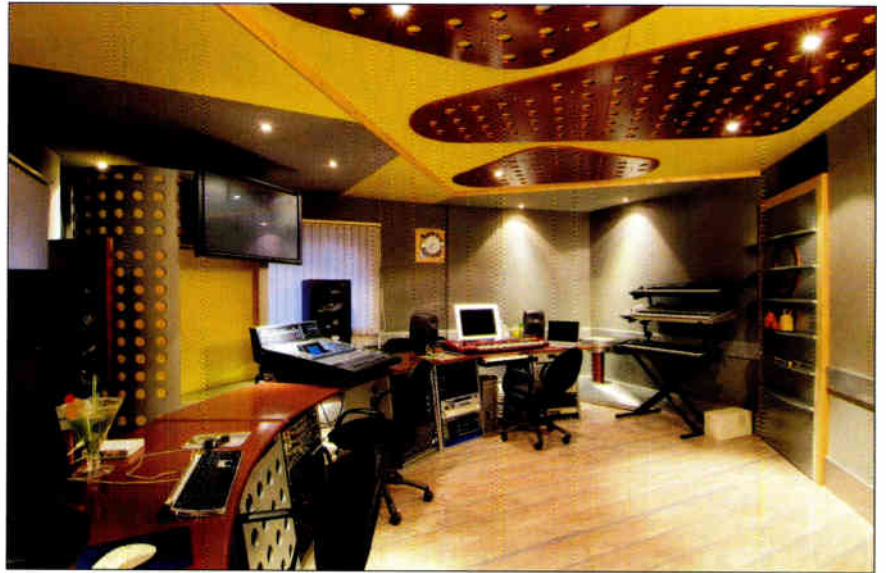
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know that even if I have a pair of Genelecs in the room I have to work in, it would still be almost impossible for me to make it accurate.

Purists scoff at headphones, but headphones are better than a bad room, and by "bad room" I include 90 percent of today's commercial studios. This goes back to trends in room design: Many other designers try to apply one theory as if it's the sole solution. We've seen live-end rooms, dead-end rooms, reflection-free rooms bordering on anechoic and the more current trends, where more particular types of diffusion are used to solve all problems. No one of them on its own will solve all problems across the board on frequency range. It's a mixture of certain principles: of live- and dead-end, diffusion, some absorption, some reflection-free area. *Your studios definitely have a distinctive look. How does a designer develop his own look, and how does that look impact the environment?*

My principle background is as an architect and designer, so to me the aesthetics are crucial. They're important both psycho-acoustically and from the point of view that you need a good creative working environment. We don't just dress up ugly looking



D'Arcy is seeing much work in Mumbai, India, including this private studio for film music composer Amar Mohile.

acoustics; we try to develop a unified solution that is one expressing the other. Where we started making inroads on that to my satisfaction was UB40's studio in the late 1980s [see *Mix*, May 1995 issue], the expression of the acoustics rather than hiding it. So what we try to avoid is just a fabric box.

The membranes or absorptive elements that can be developed and expressed, how does a designer develop those? Over years and time, you get different materials and ways of tackling the solution.

How would you describe your aesthetic style?

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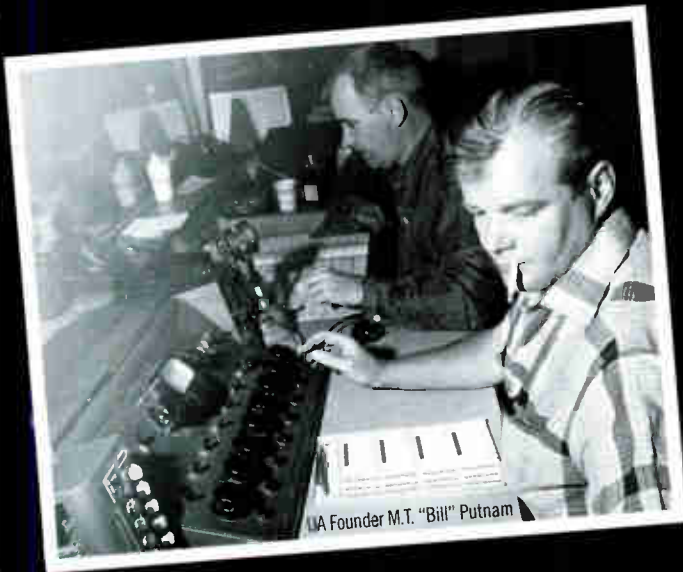
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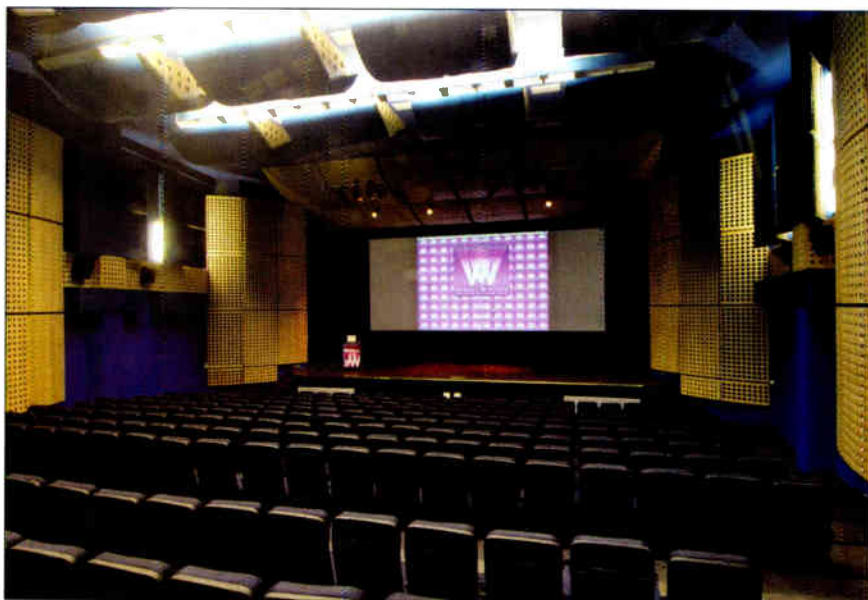
Ryan Hewitt

On Recording with the Mojave MA-200

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Ryan Hewitt

(Engineer/Mixer: Red Hot Chili Peppers, blink-182, Alkaline Trio)



In addition to numerous private studios, D'Arcy is also working on larger projects, such as this music/dance/cinema auditorium at Whistling Woods Institute for Film, Television and Arts, also in Mumbai.

Our American clients—including Rainmaker, Crystalphonic, and the most outrageous room was probably Magneto Electric Works in Minneapolis—come to us and they say they find our style quirky and European. I understand in a way what they mean. I would say that we just handle form a little differently. We're not afraid of curve, but a lot of American architecture is very linear and boxy and square. In our construction techniques, we use a much more fluid approach to design, not all straight edge. It leads to a more 1920s European industrial style in origin. And a reasonably bold use of color—we're not afraid of color.

Why is a visually pleasing environment important to an audio facility?

I would say it's roundly accepted that comfortable environments are less fatiguing, as are more natural acoustics. Working in an anechoic environment, or one where there are lots of boomy bass frequencies, is actually more fatiguing on the ear. The more natural acoustics and the same visual equivalent are more relaxing and conducive to long periods of hard work. Everyone benefits from daylight. We have introduced daylight for the last 20 years, yet in America we find people still raise an eyebrow and are surprised by that.

What advice do you have for people who want to improve their own rooms' ergonomics and aesthetics?

The rules are fairly obvious. In smaller spaces, you need absolute left/right structural symmetry more than visual symmetry. A brick wall on the right and window on

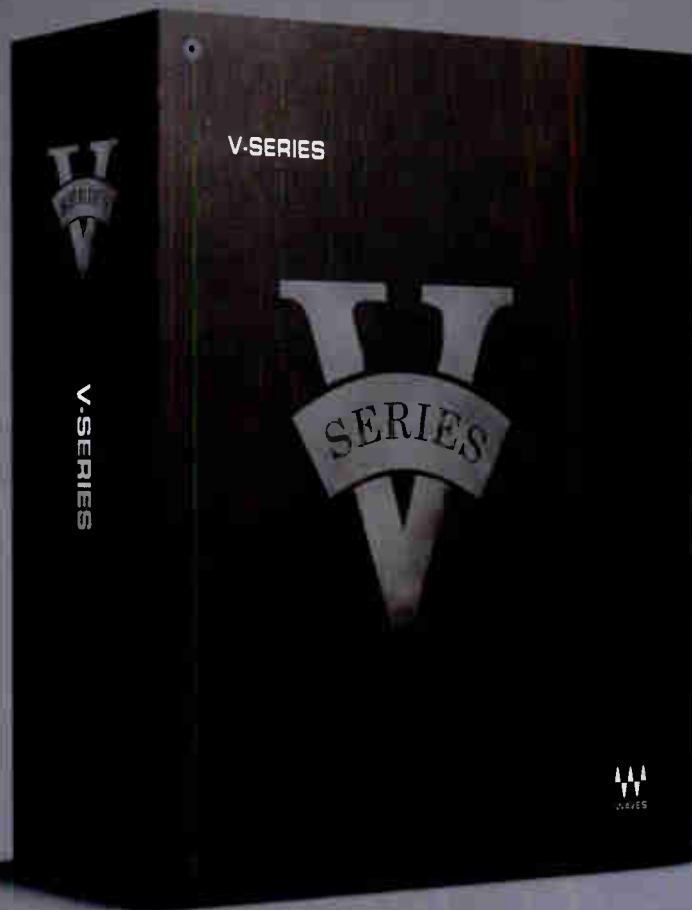
your left is not good. The problem with small rooms is that it forces people to put speakers far too close to the wall, which has low-frequency implications. So don't underestimate symmetry. Keep speakers away from the wall if space permits, and hope that position doesn't force you to sit in the middle between the front and back wall. This is fairly straightforward stuff, but you'd be surprised at how many people don't deal with it, even when they're aware that they should.

Tell me about some of the new acoustical solutions that are being developed.

Sound characteristics and the laws of physics have not changed. The way sound behaves when it leaves the speaker and the human ear haven't changed, so you can only do three things: You can absorb it—either by dealing with the pressure or the velocity component of the sound wave—you can deflect it, hence reflection theories, or you can diffuse it.

All these techniques are to achieve one thing: to make the sound from the speaker itself dominant so you perceive the sound from the speaker and not the sound of the room. But the trick is to do it in as natural-sounding a room as possible. In the old anechoic rooms, they wanted the sound to come out and never come back, but the human ear doesn't work like that, and the sound absorption techniques in the '70s and '80s were not that efficient. They weren't truly anechoic; they were quasi-anechoic. Been in one? Sounds like you're going to die.

There's one other characteristic, which is that there will be a variance in the room



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Why do you enjoy being a studio architect?

I hate it! I'd rather own a bar in Key Largo. [Laughs] It's a constant challenge. Especially working internationally, we get the opportunity to solve different design problems every day. The nature of the business is that the turnover is very rapid, and we get to see the results of our design labors very quickly. We don't have to wait years; we get to visit spaces we create usually in a matter of months. That's very satisfying: Fly to the other side of the world, walk into a room and know what color it's going to be and what's behind the door. It's a weird feeling. ■

David Weiss is Mix's New York editor.

caused by floor reflections that you can't do anything about. But the desired result is to hear the sound of the speaker predominantly over the room, in as natural an environment as possible.

What do you bring to working in so many different countries and cultures, and what do you bring back from them?

We learn that there are many ways to skin a cat! That's why it's important for the acoustician or studio engineer to have a repertoire of techniques, not to be locked into one particular theory. Sometimes the materials aren't available, for example. What we do is try to avoid importing everything, and we go to a lot of trouble to see what materials are available locally. In Bollywood, we're on our 14th room in five years, and we've seen the advantages of this approach starting with cost: It's unfair to force less-developed countries with weaker economies to import materials, and with skill you can achieve as good, if not better results simply by using intelligence and thinking about the problem rather than applying some standard solution in the environment.

In India, wood is expensive, whereas marble and granite are not. In North America, labor is more expensive, so there's a tendency to use geometric and square solutions because it's quick. In India, labor is a fraction of the cost [as compared to] the rest of the world, so you can have a much more fluid approach to your design because you can afford to do it. It also gives you a much more expanded repertoire of ways to color. You learn there's no such thing as a bad color!

Where's the growth in your sector of the industry?

In India, it's film/mix, which includes music for film and composition of music for film. In India, 95 percent of films have songs, and the songs are featured, not just in soundtracks but also as a part of the film. That's different

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Tim Larkin

Jumping Feet First Into Dynamic World of Audio for Videogames

Tim Larkin is very much the picture of the modern-day studio multitasker. As the music and audio director for Cyan World in Spokane, Wash., the company behind the popular *Myst* videogame series, he's kept busy devising sonic worlds for Cyan's episodic *Myst Online: Uru Live*. And outside this life, Larkin always has several irons in the fire: sound design and/or music work for a host of videogame titles, including *Half-Life 2 (Episode 1 and 2)*, *The Incredibles*, *Prince of Persia*, *Splinter Cell 4* and the much-hyped *Lair*; sessions as a trumpeter, contributing to a variety of game, album and film/TV projects (he created the sound design for the 2002 Academy Award-winning best animated short film, *The Chubbchubbs*); and on the day in early June when we spoke, he's finishing up some Asian-themed music cues for a popular reality TV series.

"I have two studios that I work in," Larkin says. "One is here at Cyan—it's a Pro Tools HD3, Mac-based system running Digital Performer. I also have a Pro Tools studio at home [in nearby Colbert], but instead of an HD system I have a MIX 3, also Mac-based. My setup at home is surround: I'm using the M-Audio BX8As for surrounds, a BX10s for the sub and the Blue Sky-based management system. Here [at Cyan] I have a stereo setup. These days, I mostly use soft synths: Spectrasonics' Atmosphere quite extensively, not only for music but sound design, [and] Stylus RMX, Sonic Implants' Symphonic Strings and various other GigaStudio libraries. I have a Korg Triton Extreme controller.

"I have an iso booth at Cyan that's probably about 10x8 [feet]; in my home studio, I'm in a rather large room—probably 25x30—and I do all of my trumpet recording at home," he continues. "There's no need for isolation or anything; I just stand in front of the computer, set up my microphone and I'm ready to go because I'm usually doing a single trumpet part. I work with a lot of other composers down in L.A. and other places, and sometimes they'll send me Digital Performer sessions and I just put the trumpet part down and send it back time-stamped and it works great. It allows me to work up here and still be connected."

Larkin has been in Washington for about eight years now, after getting his start as a keyboardist and trumpeter in bands and orchestras in his native San Francisco Bay Area. Later, he says, "I started a music production company with a friend, and our main focus at the time was to do jingles. Then, around 1993, when the CD-ROM market started to heat up and games like *Myst* first came onto the scene, we decided to tap into that market, so we looked in the phone book and the first company we saw under 'B' was Broderbund. We called them out of the blue and we were both hired within three or four



Tim Larkin works at ease in his Spokane, Wash.-based studio.

months. The industry was exploding at the time."

Larkin worked on music for numerous games at Marin County-based Broderbund, including *Carmen San Diego* and the *Playroom/Treehouse* Series, but he soon latched onto Cyan's *Riven* game (which was distributed by Broderbund), and eventually went to work full-time for Cyan in Washington. Through the years, Larkin has also branched into sound design work, and today he relishes his ability to go back and forth between music and effects work. It helps that audio in games has taken on a more important role as new formats are developed.

"Before, we were starting out at 8-bit and we were always complaining that everything sounded bad," he says. "I don't think we can complain about that anymore. I just worked on a title for PS3 called *Lair*, and I was fortunate that what I worked on was the cut scenes, which [were] full-blown 5.1 dedicated, which we did 24/48. It was a lot like working on a movie. That's where game audio has been going."

And whereas in years past, many game sound designers relied heavily on library material, Larkin notes. "I record original material every chance I get. I have a little M-Audio MicroTrack handheld recorder that records at 24/96, and it's got a stereo mic on it and it's awesome. I had it next to my nightstand the other night and I got a recording of a screech owl at two in the morning. I used those recordings in *Myst Online* about two months ago for a creature, pitched down. I have a lot of original recordings and I end up going to those quite often. Sometimes I'll record something for a specific purpose, but often it's just a sound I want—like the owl or this sound [that] my truck's brakes make. I had my wife turn the truck engine off and then she coasted down the driveway [applying the brakes] and I was underneath it with the MicroTrack recording it. I ended up using some of that in *Lair* and *Half-Life*. You never know where you're going to find a cool sound!" ■

Blair Jackson is Mix's senior editor.

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Foley Adds Real-Life Drama to *The Bourne Ultimatum*

By Blair Jackson

In our September 2005 issue, we ran an in-depth story about the often-misunderstood and under-appreciated art of Foley recording—the post-production process that adds everything from footsteps to door slams to tea cup clinks to clothes rustles, and a zillion other big and small sounds to make movies sound as true to life

Baker Landers were supervising sound editors; Craig Jaeger was Foley supervisor, and Kelly Oxford, Foley editor. The Foley recording team came from Burbank, Calif.'s One Step Up, which also handled the first (but not the second) film in the series, with Dan O'Connell and John Cucci the Foley artists, and James Ashwill the mixer. The re-recording mixers at Todd-AO West were Scott Millan—a veteran of all three films—and “new-comer” to this series, David Parker.

Hallberg and Baker Landers have been working together for nearly 20 years now on dozens of excellent films, including *Braveheart*, *Gladiator*, *The Patriot*, *Black Hawk Down*, *Seabiscuit*, *Ray*, *The Island* and many more. According to Baker Landers, the first step in the Foley process is, “Per and I will spot the film together—we’ll go over it and make a game plan for the effects and the Foley and all the other elements. One of my favorite things to do is to

and watch the movie together if we can and talk during it and bounce ideas off of each other. A lot of ideas come from our group spotting sessions.”

“Karen and Per will also usually have special notes they’ll hand me,” Jaeger adds, “and it might include things the director really wants, as well as other things we need to cover that might not be so obvious.”

“Then I go through it and program in Pro Tools,” he continues. “For years, we used to make what was called a ‘shopping list.’ I’d go through and do a footstep pass, for instance, and handwrite it. I’d make a list of footage in and footage out: ‘Okay, I want Jason’s footsteps on wood here,’ and where it would change I’d write, ‘Carpet at 55 feet.’ It was a lot of work, a lot of typing and I wasn’t a very good speller or typist. [Laughs]

“Now I’ll create and build a session [in Pro Tools]. I’ll put in a ‘record’ file, and when I see something I want to cover, I tag it and give it a name. Then when it goes to the Foley stage, they pull up that session, and they say, ‘Okay, here are Jason’s footsteps all the way through. We need this prop for this character here,’ and everything is laid out clearly. It can be very, very specific: ‘This “grab” is only this number of frames.’ Dan [O’Connell] will look through it and know exactly what they need to do or need to find.”

“Craig lays out the session for us to follow,” O’Connell says. “From having worked with them so much, though, we also know the kinds of things that Karen and Per really like, and Karen also gives us the notes not just from the director, but from the picture editor. Knowing what the picture editor [in this case, Christopher Rouse] wants is as important as knowing what the director is looking for because they have a vision of how the cut film is all going to tie together. So we get all these notes and get a sense of what everybody is thinking about. Then we head off and try to fulfill that: hitting everybody’s mark and adding our own special touches along the way.”

“Every movie is different,” Jaeger comments, “and that’s part of the challenge: ‘Okay, what are we going to do better than we did on the last two [*Bourne* films]? Which is hard because I think we did a pretty good

cover the Foley stage; I’m a big fan of Foley. When we go through it, there are obvious Foley things we know we’re going to be doing. Other things we’ll discuss and figure out what’s going to come from effects and what will be Foley.”

At this point, Foley supervisor Craig Jaeger and Foley editor Kelly Oxford come into the picture, so to speak. Jaeger was born into the business—his father, Donald, was an effects editor—and he worked as assistant effects editor beginning in the late ’70s before becoming a Foley artist in the late ’80s, then a Foley editor and, with *Air Force One* in 1997, a supervising Foley editor. It is Jaeger, in consultation with Baker Landers and Hallberg, who is primarily responsible for laying out the specifics of the Foley sessions for the group handling the actual Foley recording—in this case, One Step Up. “The way Per and I like to do it is get everybody in a room and run reels,” Baker Landers says. “I like everybody to sit

Foley artist Dan O’Connell amid the props in the main room at One Step Up, a leading Foley facility he operates with John Cucci.

as they are. To revisit the topic, we chose to zero-in on one particular film and discuss specific issues related to Foley.

In this case, we looked at *The Bourne Ultimatum*, the third installment in the popular series of action films starring Matt Damon and based on Robert Ludlum’s best-selling spy novels. The first two films—*The Bourne Identity* (2002) and *The Bourne Supremacy* (2004)—have earned more than half-a-billion dollars worldwide, and the promise of more fast-paced thrills in exotic locales (Russia, France, Spain, Morocco) and some measure of resolution of the complicated story of agent Jason Bourne’s mysterious past will likely translate to another box-office smash.

Paul Greengrass, who directed *Supremacy* (and, more recently, the exceptional *United 93*) is back at the helm. So is much of the same post sound team that helped make the first two films so compelling. Working out of Soundelux, Per Hallberg and Karen

PHOTO: JASIN POLAND/UNIVERSAL PICTURES

job on both of them! What can we do differently? Let's get into it and find out."

Adds Baker Landers: "We know what we wanted Bourne to sound like in the past, but we also say, 'Let's try to change it up a bit. You can't make it *too* different because you have an audience that's in love not only visually, but also sonically, with certain aspects of Bourne. The most important thing about Jason Bourne's character is he's very solid and fast and deliberate. He's not real high tech-y; he's not flashy. He's down and dirty—he gets it done and he's precise; he's a machine. So the Foley movement has to reflect that. It's not just the surface he's on or the shoes he's wearing; it's his attitude, his confidence. And that's something we try to follow all the way through with his movement. There's nothing messy or sloppy."

I ask how Bourne's confidence and purposefulness is conveyed by Foley. "The movements are precise and solid," Baker Landers answers. "They don't sound wimpy or tentative. Remember, Foley artists are *actors*. So a lot of the attitude is coming through Dan and John [Cucci]. The art of really capturing a character is amazing, and when it's good you don't even notice. When it's bad, though, it's distracting and maybe you don't feel the presence of the character, or his size, or his speed, or his dexterity."

In O'Connell's view, "Jason is not tentative at all. He's a highly trained individual and he doesn't stop to think. It's always a *go*. It's all *bam-bam-bam!* So I have to be sure that what I do [in Foley] is going to sound like that. He's climbing up sides of buildings and going from rooftop to rooftop and jumping through glass windows, running down hallways, down stairs. Then there are the hand-to-hand combat fight sequences—because of his training, he is able to fight with almost anything in a room; anything becomes a weapon. It may be a book or it may be a candelabra or something just sitting on a table, but it is weapon of choice for that moment, so we have to find those things and make sure they

sound right and that the mood of the scene reflects the unpredictability and the spontaneity of the situation he's in."

One Step Up has been a top L.A.-area Foley company for the past 13 years, though O'Connell's career stretches back much farther. Their new facility in Burbank is state-of-the-art, with multiple walking/running surfaces (of course), two different dirt pits—"your Western dirt, which is hard-packed, and forest dirt, which has a softer, moister quality"—an area for water Foley, a Pro Tools rig, a large complement of microphones with different characters—including Neumann and Sennheiser shotguns (industry-wide favorites)—and a huge storage facility down at the other end of the block filled floor to ceiling with every prop/noise-generating object imaginable. Their prop assistant, Gabriel Elliott, "is a really important part of all this," O'Connell says. "He'll set up in the morning, and all through the day he'll be getting us special things. I'll give him the weirdest request and somehow he'll find it."

In the early days of One Step Up, they recorded to 24-track tape. That was followed by DA 88s, then MMR-8s and now, of course, most Foley sounds are shot from multiple angles directly to Pro Tools, which is now an integral part of every facet of the post sound chain in nearly all film productions. "Pro Tools has made it more efficient in terms of getting tracks from the Foley stage to the editing room and laying things out and cutting them," Baker Landers says. "Even on the Foley stage itself, you say, 'Well, can we move that a couple of frames?' and you can do that very quickly now. 'Can we play these three tracks together but move that other one?' Trying differ-



Matt Damon reprises his role as Jason Bourne in *The Bourne Ultimatum*.

ent things is much easier now, but what the guys actually do on the stage hasn't changed that much. It's still a process that takes a lot of time to get it right, though hopefully [the technology] gives you the luxury of being able to do a few more takes if you need to."

O'Connell says that when possible, they'll try to match the feeling of existing production tracks: "If we can fall into that area sonically, it helps the dubbing mixers in the long run because if they have to match something we're doing into a scene that exists, it's an easier time for them." Adds Baker Landers, "The art of great Foley is that it sounds like it was recorded on the day [the visuals were shot]."

Foley runs the gamut from subtle clothing movements to augmenting ear-splitting FX, and all agreed that each is as important as the other. "Sometimes the subtle movement is more challenging," Baker Landers comments. "If it's something in a quiet scene that's going to play and you're on

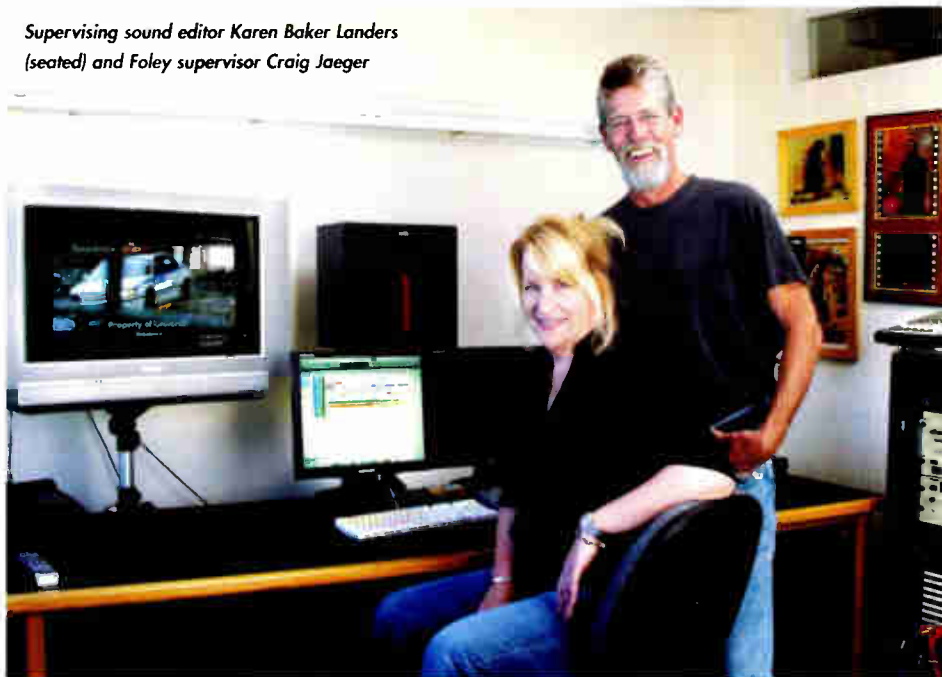
a mixing stage and you're finaling and putting everything together and hearing it really loud, it's all about that detail, and you have to get it perfect or it can be jarring."

When it comes to FX, "Everything is so intertwined, whether it's Foley, effects or backgrounds," Baker Landers adds.

O'Connell: "A lot of times, the effects editors will have a car crash or a huge explosion, but they may not have the piece of something that falls in your face, like a big spring or a piece of fender or a tire that rolls by. Those kinds of things are where [Foley] can come in and add another dimension to the sound job. Sometimes they'll send us temp tracks or some rough representation of what an effect is going to sound like; then we can get an idea of what frequency we need our stuff to fall into to make it come alive. A lot of times, it's broken glass or small pieces of metal debris; little things like that. We're adding the cherry on the sundae that the effects editors make. [Laughs] Most of what you hear is many layers that all play together, and each little bit of detail heightens what the audience is going to take in as their reality. The more that we can provide, the more they're in the film and excited by it."

Jaeger cites a car chase in *The Bourne*

Supervising sound editor Karen Baker Landers (seated) and Foley supervisor Craig Jaeger



Ultimatum that neatly combines Foley and FX, noting that engine sounds and tire screeches and the like were the natural domain of FX, but "where the bumper flies off and there's a big *whump-whump-whump-*

whump as it rattles off, that was done in Foley [with Dan O'Connell dragging a trunk lid across the ground]. At one point, the bumper's still on the car but it wobbles, and Dan created a really great metal sound and



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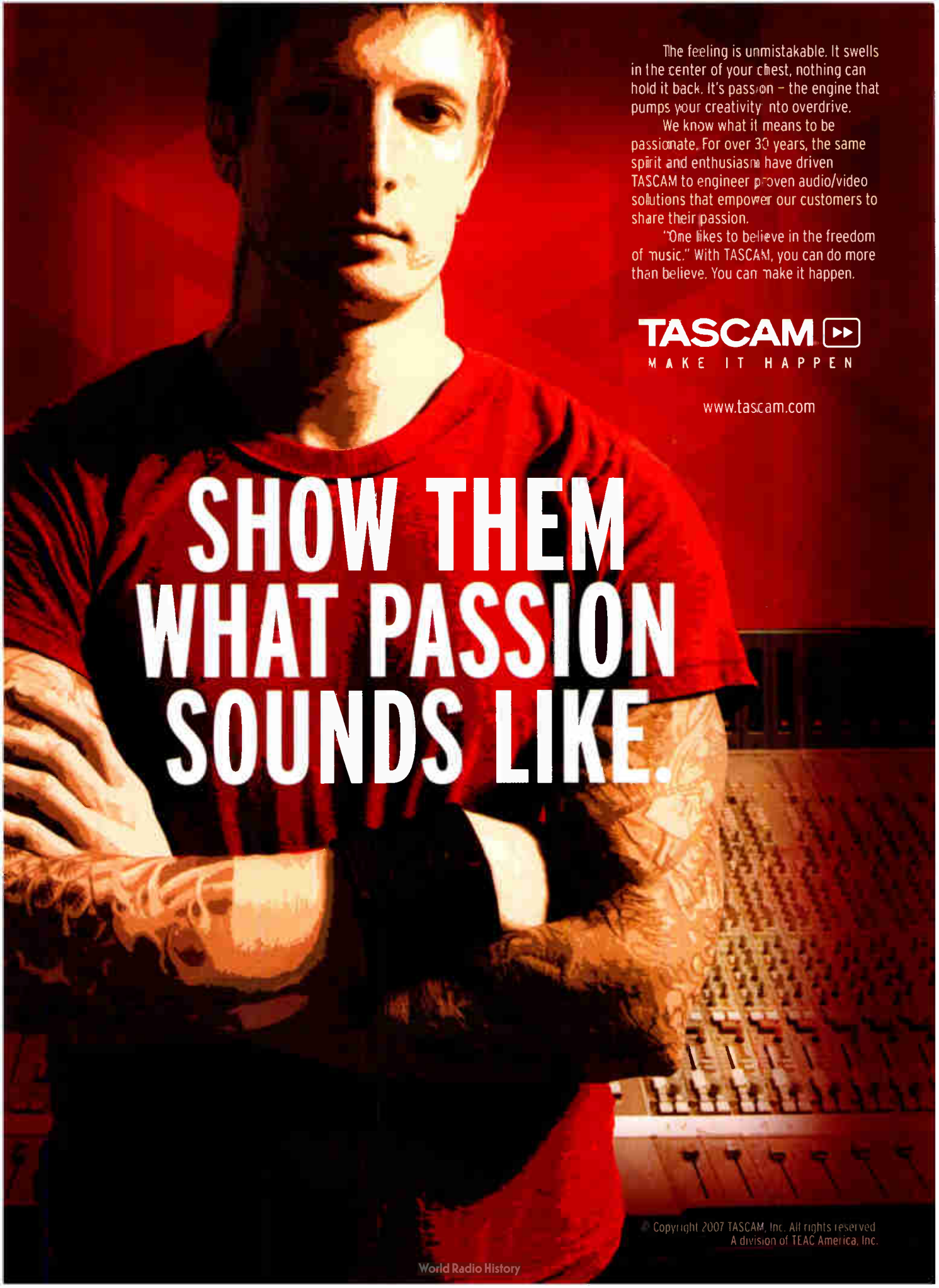
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then a kind of plastic-y wobble and then I put them together so they matched because it's right there in your face—you see it so you want to hear it." Foley was also key to the sounds inside the cars during the chase: "Bodies are flying against the door; hands are turning the wheel real fast," Jaeger says. "These are all things that build tension in the scene."

Baker Landers was at One Step Up for many of the Foley sessions, which is consistent with her and Hallberg's great attention to detail and intimately knowing every element of the sound tapestry. As O'Connell

notes, "The great thing about Karen and Per is that they really love to find out what each element is going to be so that when they get to the dubbing stage and they're sitting there with the director and the picture editor, they can say, 'We shot a really cool thing for this—let's listen to it!' The fact that they know each piece of their project is really helpful. Karen sits with us and we'll get a direction from her, we'll go with that and then play back the reels for her and we'll do fixes based on our playback."

Once the Foley for a reel or section has been recorded, Jaeger takes the material



Foley editor Kelly Oxford worked with Foley supervisor Craig Jaeger.

and he and Oxford cut it precisely to picture. "We'll get it in the ballpark," O'Connell says, "and we'll give them our final choice, which is usually the one we think blends best with the overall feel of the scene, as well as other options." Later in the process, the director or picture editor or re-recording mixers may ask for additional elements or strip away layers for whatever reasons. Picture changes or the arrival of new visual FX late in the process often necessitate shooting new Foley. Baker Landers estimated that Foley for *The Bourne Ultimatum*—considered a big job—would take more than 25 days, "whereas a regular film usually tries to do it in 10 days or less. Foley schedules have gotten crunched on some of the smaller films and that's usually not a good idea."

Asked about the most challenging aspect of creating Foley for *The Bourne Ultimatum*, all three interviewees mention the same area: footsteps. Bourne is constantly on the run—literally and figuratively. "There's lots of storytelling through feet," Baker Landers says. "We spent a lot of time on specifics capturing the right texture and the right feeling, whether it was a chase on foot or something less frantic, like in a dark room where you can't see much but you can hear the *creek* of a footstep—that can be a cool moment for the audience."

Adds O'Connell, "There are a lot of one-on-one foot chases that go up halls, down halls, down stairwells, over rooftops, climbing up here, climbing up there. That was a huge part of it this time. So that's a lot of different surfaces and different sound environments. But that's part of what makes it fun and interesting: figuring out how to make what you see on the screen sound real and exciting." ■

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Soundelux Design Music Group

Extending the Reach of Audio for Interactive Entertainment

In our June issue, we profiled Technicolor Interactive, one of many studios providing services to games and interactive entertainment. This month, we take a look at another well-known facility: Soundelux, specifically Soundelux Design Music Group. I had the opportunity to speak with Scott Gershin, Marc Aramian, William "Chip" Beaman and Bryan Celano about the group's humble beginnings and current impressive list of clients, as well as its game-specific audio integration techniques.

How did DMG start and what is its relationship with Soundelux?

Beaman: Soundelux Design Music Group [formerly known as Soundelux Media Labs] was started in 1991 by Scott Gershin, who at the time was lead sound designer at Soundelux in Hollywood. With the backing of Wylie Stateman and Lon Bender, Scott was able to assemble an array of talented people who had to break the norms of how things were done and come up with new approaches and techniques to a brand-new industry.

Gershin: I had a vision to create a "Sound Designer and Composer Think Tank" that incorporated many of the creative approaches used in film post sound. Each Soundelux DMG designer combined those techniques, along with the high level of audio expertise found in the recording industry and their knowledge of synthesis technology. We focused those disciplines to work concurrently in the then-infant game sound industry since most of the sound and music found in games at that time was created using FM synthesis.

What percentage of DMG's projects are games?

Gershin: Soundelux Design Music Group is the interactive entertainment arm of Soundelux, which is an Ascent Media company. We have an army of sound designers, composers, re-recording mixers, integrators, voice-over directors, managers and coordinators. Games make up about 80 percent of our projects. We also work on commercials and location-based entertainment, such as T2 3D, Jurassic Park and the Kennedy Space Center shuttle-simulator attraction.

Scott, you're a member of the Game Audio Network Guild and co-chair for the Interactive Entertainment Sound Developers branch. How is DMG involved with this effort?

Gershin: The GANG:IESD group was started by myself and Gene Semel of Sony Entertainment. [At the time of the initial gathering, Semel was working at High Moon Studios.] We decided to get together and throw a networking party where sound designers had a chance to show off what they had been working on or just talk and share



The hardworking, tightknit crew at Soundelux DMG centered around Scott Gershin in his sound creation/mix room.

ideas. After that initial gathering, Gene and I recruited David Murrant of Sony and Scott Selfon of Microsoft, and the idea just kept growing from there. Some of the supervising sound designers have also been asked to join the board of directors for the Los Angeles-area group. [Eds. Note: The IESD was officially launched last month with an announcement at Expression College for Digital Arts, a G.A.N.G. program partner. For more, visit www.audiogang.org.]

On what projects has Soundelux done real-time mixing?

Gershin: It is a best-case scenario when a client asks us to be involved in implementation and in-game mixing, as well as sound design. It is crucial to listen to the sounds we have created in context to make sure they are having the desired emotional effect, as well as sort out any problems with how they blend or clash with other sounds. Hearing the game come alive also inspires us to add new sounds or change existing sounds, in the same way feature-film sound editors add "sweeteners" during the mix.

We have been fortunate to work with producers and audio directors who want to spend time making sure all the hard work put into the sound design, music composition and voice-over translates into a great-sounding mix. One thing we contribute to in-game mixing is our experience being at the mix for so many movies.

Describe your gear setup in the different rooms and how it interfaces with game audio specifically?

Aramian: We've created a studio environment from the ground up that is geared toward the gaming world. We built design suites to simulate the average space a gamer may play in [most are 18x16 feet]. All of our designers and composers extensively and continually research the best tools for game design.

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Celano: All of our in-house design suites are equipped with Pro Tools HD and FMOD running on Mac OS X, as well as dedicated Windows machines running a multitude of middleware, including Wwise, FMOD, XACT and other proprietary programs we can't talk about. We have a developer partnership with Wwise, which opens a dialog between our designers and the software programmers.

Gershin: Our editing systems are connected to the Ascent Media Network—the same system that also connects all of Ascent Media's facilities, including the Todd-AO ADR and

Foley stages. This gives Soundelux DMG the ability and flexibility to use the same facilities as our film and TV groups. We can shoot Foley at any one of our Foley stages [Santa Monica, Burbank and Hollywood], record ADR at several of DMG's VO stages, capture/record facial MoCap and bring in A-list Hollywood talent. Soundelux also has access to the family of Ascent Media studios and facilities around the world [New York, Atlanta, London and Singapore, to name a few].

Beaman: We also have access to a growing roster of composers, including Chris Tin, who wrote "Baba Yetu" for *Civilization IV*. Some

composers are in-house, some off-site, so we can provide steady delivery of assets that can also be mixed with other assets on the same project before delivery to the client.

What is the most recent project that you would consider the most innovative to work on from an audio standpoint?

Gershin: *Lost Planet* was done in 5.1, and because the sounds follow the physics of the game accurately, many Japanese gamers bought 5.1 systems. There was quite a buzz out there on the game forums about how cool it was to have a rocket whizz right by your head and hit something behind you.

We're currently working on a huge karaoke game, whose name I can't mention, that required producing the vocals on 30 songs using contemporary pop techniques: massive multitracking, pitch correction, multiple miking setups, et cetera. Two gamers can pick and choose whose part they will be singing. The remaining parts are mixed as stems in-game. The PlayStation 3 console mixes the live vocals with the chosen tracks and grades the singers on both pitch and timing.

Are there any projects you've done lately for VO music and/or SFX in which the games only use 44.1kHz/16-bit or higher formats? Any games using 96 kHz?

Aramian: Several years ago, Soundelux started to record all of our sound libraries at 96k/24-bit and some at 192k/24-bit. In fact, all of the Hollywood Edge libraries represent about three percent of our total in-house library. When we mix and master our sound design, music, VO and cinematics, we are always at 24-bit; if needed, we can convert our files to 16-bit. We always work at the highest-possible resolution and only convert at the last step. As far as sample rates go, we are mostly at 48k, but occasionally work at other sample rates such as 96k and 44.1k. We will work with lower sample rates on specific projects like mobile games. We haven't worked on any games that use 96kHz files in the finished product; 48k/16-bit seems to be the standard now. Instead of using lower sample and bit rates, developers are using data compression to save memory.

What percentage of your work would you say is done in surround?

Gershin: Most of our cinematic work is done in 5.1 and stereo-encoded formats [Dolby Pro Logic, PL, PL2]. We are designing with surrounds in mind, both for in-game and cinematics. We have mastered music mixes in both formats. We like to master and deliver cinematics in 5.1 so the client has more options. ■

Alexander Brandon is the audio director at Obsidian Entertainment.

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D. Film Sound Production

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Dreamgirls, DreamWorks
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Pirates of the Caribbean: Dead Man's Chest, Walt Disney Pictures
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E. Studio Design Project

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Levels, Hollywood, CA
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F. Interactive Entertainment Sound Production

Call of Duty 3, Activision
Gears of War, Microsoft Game Studios
God of War II, Sony Computer Entertainment America
Tom Clancy's Ghost Recon Advanced Warfighter 2, Ubisoft
Tomb Raider: Legend, Eidos Interactive

G. Surround Sound Production

A Valid Path, Alan Parsons (DualDisc)
Barenaked Ladies Are Me, Barenaked Ladies (DVD-A)
Live at 1988 Montreux, Carlos Santana & Wayne Shorter (DVD)
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H. Record Production/ Single or Track

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I. Record Production/Album

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Apogee Electronics Ensemble Mac-based digital audio converter with four preamps, monitor control and 36 simultaneous channels
Digidesign Mbox 2 Pro 6x8 FireWire interface with mic preamps/DI inputs and monitor control
Focusrite Saffire Pro 26 I/O FireWire audio interface with eight preamps and monitor control
Lynx Aurora With LT-HD card multichannel digital converters with Pro Tools HD interfacing
PreSonus FireStudio 26x26 FireWire interface with eight preamps, mixer/router, monitor section and optional remote
TC Electronic Konnekt 24D 14x14 FireWire interface with preamps, onboard DSP/mixing and monitor control

C. Mic Preamplifier Technology

AEA The Ribbon Pre high-gain preamp for mics that don't use phantom power
Manley TNT dual-channel (one tube and one solid-state) preamp
Neve 8801 channel strip with preamp, EQ and dynamics from Neve's 88R console
PreSonus DigiMax FS eight preamps with analog and 24-bit/96kHz digital outputs
Solid State Logic XLogic Alpha Channel channel strip with preamp, EQ and limiting
Universal Solo Series 110/610 single-channel tube (610) and solid-state (110) preamps

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D. Microphone Technology/ Sound Reinforcement

AKG D 5 dynamic vocal mic

Audio-Technica ATM250DE dual-element condenser/dynamic kick drum mic

Audix VX 5 condenser vocal mic

Equation Audio DS-V10 dynamic vocal mic

Neumann KMS 104 condenser vocal mic

Shure KSM9 condenser vocal mic

E. Microphone Technology/ Recording

Audio-Technica ATM 450 cardioid condenser mic

BLUE Woodpecker ribbon mic with active electronics

DPA SMK4061 stereo microphone kit for acoustic piano recording

Neumann KM D Series digital versions of KM 80/100/180 with AES/EBU and S/PDIF outs

Royer R122-V ribbon mic with active tube electronics

Telefunken | USA R-F-T AK47 multipattern tube mic

F. Wireless Technology

Audio-Technica 1800 Series Dual Channel camera-mount UHF wireless

beyerdynamic Opus 900 UHF wireless with single/dual/quad receivers

Lectrosonics SMQ Transmitter ultra-compact Digital Hybrid backpack

Mipro ACT-81/82 digital wireless system

Sennheiser NET1 Ethernet- or PC-based wireless system controller

Zaxcom TRX990 wireless mic/IFB transceiver with onboard recording

G. Sound Reinforcement Loudspeaker Technology

Electro-Voice Phoenix Series Manifold Technology loudspeakers

JBL Professional VP Series powered, flyable, networkable speakers

Meyer Sound M'elodie ultracompact curvilinear array loudspeakers

Nexo GeoD tangent array loudspeakers

QSC ILA installation line array loudspeakers

Turbosound Aspect TA-500 Series point-source loudspeakers

H. Studio Monitor Technology

ADAM Audio A7 compact near-fields

Blue Sky Big Blue active studio mains in 2.1 or 5.1 configurations

Dynaudio Acoustics BM 6A MkII active near-fields

Genelec 8200/7200 Series active DSP/networked monitor systems

Pelonis Signature Series PSS110P point-source system with external amps

Tannoy Precision 8 iDP active monitors with networked DSP control

I. Musical Instrument Technology

Access Music Virus TI Polar 37-note Wavetable and HyperSaw synthesizer

Arturia Prophet V software version of Sequential Circuits' Prophet 5/Prophet VS

Cakewalk Rapture software synthesizer with Expression Engine

IK Multimedia Ampeg SVX amp-modeling plug-in

Moog Little Phatty stage synth based on Minimoog and Minimoog Voyager

WaveMachine Labs Drumagog 4 drum-replacement plug-in

J. Signal Processing Technology/Hardware

API 5500 Dual Equalizer stereo analog EQ based on API 550

Dolby Lake Processor digital loudspeaker system controller

Eventide H7600 stereo effects processor/sampler

Focusrite Liquid Mix digital vintage EQ/compressor emulator

Langevin Mini Massive solid-state stereo EQ based on Manley Massive Passive

Neve 8803 Dual EQ stereo equalizer based on Neve 8108

K. Signal Processing Technology/Software

Cedar Audio Tools 3.2 seven audio restoration tools for the Pro Tools platform

Celemony Melodyne 3 Studio pitch-shifting/time-stretching plug-in

McDSP ML4000 Mastering Limiter high-res limiter/multiband dynamics plug-in

Roger Nichols Digital Dynam-izer advanced compression plug-in

Universal Audio Neve Classic Console Bundle 1073/1081 EQ and 33609 stereo limiter/compressor emulations

Waves V Series vintage equalizer and compressor emulations

L. Workstation Technology

Ableton Live 6 music creation/production/performance tool for Mac and Windows

BIAS Peak Pro 5.2 Mac-based stereo editing/processing/mastering software

Cakewalk SONAR 6 Producers Edition Windows-based DAW/music production software

Digidesign 003 FireWire-based workstation/controller with Pro Tools LE

MOTU Digital Performer 5 Mac-based DAW/music production software

Steinberg Cubase 4 Windows/Mac-based DAW/music production software

M. Recording Devices

Eidirol R-4 PRO 4-channel, 24-bit/96kHz field recorder

HHB FlashMic combo Flash recorder/Sennheiser condenser mic

Korg MR-1000 1-bit (up to 5MHz) pro mobile recorder

Marantz CDR310 portable CD field recorder

Sony MZ-M200 16-bit/44.1kHz field recorder

Tascam DV-RA1000HD 192kHz/24-bit or DSD mastering recorder

N. Sound Reinforcement Console Technology

DiGiCo DST12 digital theater console

Digidesign D-Show Profile compact digital console

Mackie Onyx 32.4 analog console

Midas XL8 digital console

Soundcraft Vi6 digital console

Yamaha PM1DV2 digital console

O. Small Format Console Technology

M Audio NRV10 analog mixer/digital interface/mix controller

Solid State Logic XLogic X-rack automated modular rack with summing, line/mic mixing, busing, EQ, dynamics

Tascam DM-4800 digital mixer/DAW controller

Toft Audio Series ATB analog console

Trident Series 8T-8 analog console

Yamaha LS9 digital console

P. Large Format Console Technology

Calrec Bluefin Technology DSP expander card for Alpha/Sigma/Omega digital consoles

Fairlight DREAM II With Crystal Core Engine integrated digital console/DAW

Oram GP40 Custom analog console

Solid State Logic Duality analog console/DAW controller

Studer Vista S digital console

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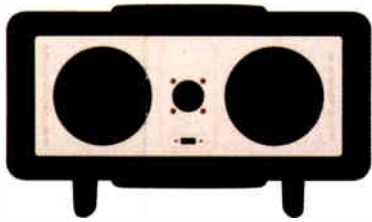
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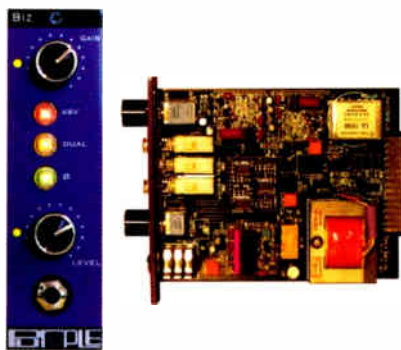
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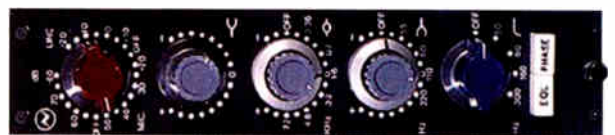
PIPE



Purple Audio Biz 500 Series Mic Pre

"It sounds as good as any high-end preamp should, but compared to other modular preamps, the Biz's chameleon-like tonal flexibility makes it much more valuable for multitrack recording." - *Andy Hong, TapeOp*

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World Radio History

Bebel Gilberto



Gilberto sings through a Neumann KM105.

and who mixes on a recently purchased Yamaha LS9-16) says Gilberto "has an intimate knowledge of Brazilian music and how it should sound, so we've developed some fairly elaborate hand signals so she can make adjustments during the show." Gilberto and percussionist Mauro Refosco use Sennheiser EW300 G2 wireless units, while guitarist Masa Shimitsu, keyboardist Federico Pena and sax/flutist Jorge Contentino have Shure hardwired packs. Gilberto has custom molds from Future Sonics and the rest of the band uses Westone UM2s. Norman monitors with Ultimate Ears Super.

Photos and Text by Steve Jennings

Bebel Gilberto's current jaunt is all about "less is more," as the tour is carrying very little production, relying on local P.A.s and tweaking via SpectraFoo. But front-of-house engineer Nathan Harlow travels with a few pieces of outboard: BSS Audio 404 comp, AT1 Pro 6 mic pre and a Metric Halo computer interface. Harlow began working with Gilberto in 2001, first mixing monitors and later filling the FOH spot two years ago. *Mix* caught up with the tour in San Francisco.

"We have 24 channels off the stage," Harlow says. "In addition to comping some of the usual suspects, I put light subgroup compression on percussion and keys. If I can get two reverbs and a delay, I am all right. I prefer a full-range P.A. in stereo. Extra subs off an aux and frontfill can be really helpful."

Monitor engineer Dean Norman (who previously did FOH for Emmylou Harris and joined this tour three months ago,



Nathan Harlow (top) and Dean Norman

FixIt

Last month saw Irish guitarist/vocalist Gary Moore and his band touring the UK to promote their latest album, Close As You Can Get. Front-of-house engineer Dave Wooster mixes on a Yamaha PM5D. A Martin Audio W8LC P.A. is driven by XTA DP226s and a DP448.

This tour is traditional rock 'n' roll-style blues, which needs depth but with clarity and drive. I set the EQ settings through crossovers with the XTAs and it's driving the LCs really well. The 448 gives me the option of sending two feeds to it: one for the flown system and one for the ground-stacked boxes. I can also group it down to a stereo feed and then matrix it from within the 448. Some days I have the option of running two separate EQ systems or one across the entire system. I have my own SiDD providing EQ across the stereo left and right system so I have another level of show EQ there.



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News



ARON ROSS PHOTOGRAPHY

Rufus Wainwright recently played seven sold-out UK theater shows; Concert Sound provided an Adamson Spektrix rig with five XTA DP226s controlling the system. Front-of-house engineer Matt Manasser used his DiGiCo D1 console.

Veteran engineer/sound system designer Paul Giansante joins Meyer Sound (Berkeley, CA) as touring manager...BBC America's **BritBus Tour** criss-crossed the country promoting British music, television and culture; audio partner **Harman Pro Group** provided portable P.A. equipment from Soundcraft, AKG, dbx, DigiTech, JBL and Lexicon to support the tour's musical numbers...**D&M Professional** is now distributing select **Boston Acoustics** loudspeakers to the sound contracting/ fixed-installation markets...For her current world tour, Nelly Furtado asked **Sennheiser** to make a special version of her favorite microphone, the SKM 935 from the Evolution Wireless Series, in white and gold... Touring engineer and Certified V-DOSC Engineer Florent Bernard is the new face at L-Acoustics as technical support specialist...For the first time in 25 years, Bruce Foxton and Rick Buckler from **The Jam** have embarked on a UK tour, joined by Russell Hastings on vocals and guitar and Dave Moore on keyboards and guitars. The board for the tour was **Allen & Heath's iLive** digital system comprising an iLive-112 control surface linked via Cat-5 to the iDR10 stage rack...The 800-seat **Meng Concert Hall** at the new Performing Arts Center at California State University, Fullerton, features a high-end sound reinforcement system designed by **Multi-Media Consulting Inc.** (Los Angeles) that incorporates **EAW AX Series** loudspeakers and **SB Series** subwoofers.

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PHOTOS: DAVE WANK

On the Road

The White Stripes

Currently out promoting their new album, *Icky Thump*, brother/sister musical team Meg and Jack White are playing to sold-out theaters and making stops at this year's largest festivals, including Bonnaroo, where *Mix* caught up with front-of-house engineer Philip Harvey.

How much gear is the tour carrying?

We are carrying a Nexo GEO T line array with Camco amps, a Midas H3000 with Lake control, effects, inserts and a Metric Halo 2882+ DSP multitrack recording rig.

Any piece of gear you can't live without?

Not particularly, but it would be either the EL8 Distressors on the vocal channels or a dbx 120 subharmonic synth for subtle low-end emphasis.

What is your mixing style for this tour?

Does this change when you're in a festival situation with quick changeovers?

We've brought in our own consoles for front of house and monitors to the festivals this year. The White Stripes have held headline slots consistently, which allows for this luxury. So even with quick changeovers, the audio control is preset.

What about your mixing philosophy in terms of Jack and Meg? Vocals and guitar/drums sitting in the mix...

The biggest challenge in mixing the White Stripes is the fact that Jack's guitar volume onstage usually hovers around 120 dB, so vocals and drums are competing with guitar even before bringing them into the FOH sound system. Since there are only two people performing, the instruments must sound large to fill out the mix. The White Stripes' musical style is very "in your face," so I take that approach, making sure nothing is too heavily compressed so that all of instruments have room to breathe with dynamics and then keep the vocals on top crowning the mix.

Where can we find you when you're not on the road?

I reside in New York City's East Village.

Now Playing

Shadows Fall

Sound Company: Audio Analysts
FOH Engineer/Board: Scott "Goodie" Goodwine/Yamaha PM5DRH
Monitor Engineers/Board: Chris Dietrich, Ryan Johnston/Yamaha PM5DRH
P.A./Amps: venue-supplied
Monitors: Audio Analysts 12 VFX, 360 VFX/1x18 subs, 2x18 subs
Outboard Gear: onboard
Microphones: Shure, Sennheiser, AKG

Joan Armatrading

Sound Company: Wigwam (UK)
FOH Engineer/Board: Andy Williamson/Yamaha PM5D
Monitor Engineer/Board: Paul Myers/Yamaha PM5D
P.A./Amps: d&b/d&b
Monitors: d&b Max
Outboard Gear: Avalon VT747SP, BSS Audio DPR 901 MkII
Microphones: Shure, Sennheiser, Neumann



PHOTO: CHAPMAN BAELER



Top Venue Installs HD Broadcast System

Using new, state-of-the-art HD video-capture systems in both Knitting Factory New York and Los Angeles venues, Knitting Factory Digital Services (KFDS) offers record labels a means to generate live performance content and provides customized delivery to a variety of broadcast, Web 2.0, wireless and other distribution platforms.

The new install includes automated, high-definition A/V-capture systems that allow a single operator to capture a four-camera HD shoot ready for broadcast or post-production; the system is expandable with an additional three to 10 cameras. The audio path comprises a stereo feed from the board (a Soundcraft MH 32-channel in New York City and a Crest X Series 40-channel in L.A.) and ambient mics (a pair of Shure KSM141SLs) through the Meyer custom system. That feed goes to a remote production booth with a Mackie ProMix console and outboard goodies, which then goes to the recording decks.

KFDS will also provide basic editing and clip compilation services. Stereo and advanced multitrack audio capture are available, as is basic entry-level direct-to-DVD capture. O.A.R. recently came in to the New York City show and used this system to put on a "secret show" for their fans.



PHOTO: PHILIP C. KIM

The Wrens performing a special concert at the Knitting Factory in New York City


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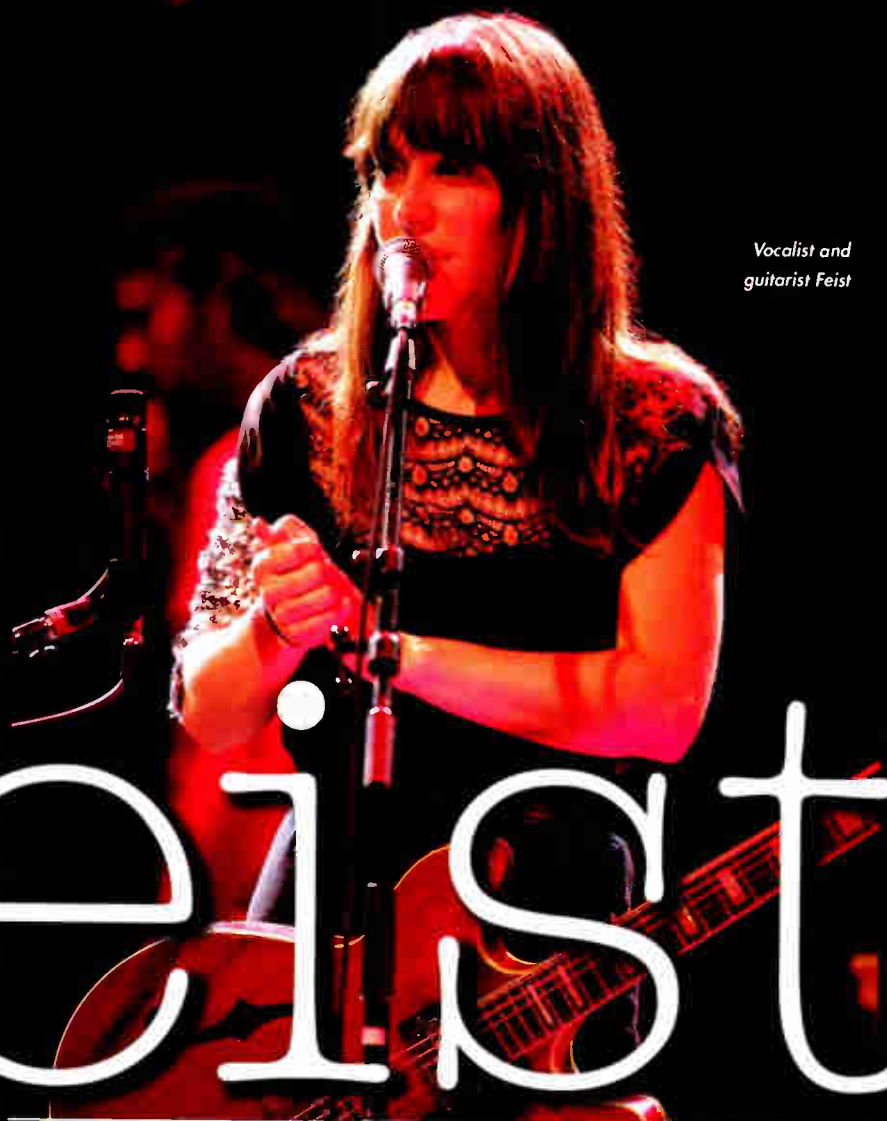
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Vocalist and guitarist Feist



Feist

Photos & Text by Steve Jennings

Making strong impressions in mid-sized venues across the U.S., vocalist/songwriter Leslie Feist is out in support of her latest, *The Reminder*. Feist and her stellar

band (Bryden Baird, keyboards/percussion/trumpet; Jesse Baird, drums/trumpet; Jason Baird, bass/flute; and Afie Jurvanen, piano/guitars/banjo) deftly move between indie and elec-

tronic stylings, accentuated by Feist's pure vocals. *Mix* was part of the sold-out crowd at San Francisco's Fillmore Auditorium, where we caught up with the tour in late June.



Front-of-house engineer Brennan McGuire is relying on venue-provided gear, including boards, but finds that he is quite comfortable with whatever desk is put in front of him. "We're using 36 inputs from the stage to FOH," he says. "I usually take a left and right for the outputs, with a 31-band EQ at the master insert point so that if there are any zones that are running off the matrix, the mix should be balanced throughout the room.

"I haven't made any specific requests for outboard gear other than an additional analog 31-band EQ that I insert on a couple of subgroups," he continues. These include one channel for lead vocal and another for the acoustic piano. "I like to see a good delay with a tap-tempo switch and a high-quality reverb.

Leslie [Feist] sings extremely quiet, so to get as much gain before feedback and to filter out background artifacts like cymbal and guitar bleed, the analog 31-band EQ on the lead vocal has proven quite essential. As for vocal mics, I've tried a lot but like the Shure Beta 58A or 57A, which deliver a lot of gain and articulation without coloring the vocal sound too much.

"Having six quiet vocals and several low-level acoustic instruments means that there are a lot of hot mics onstage. I have to follow the dynamic of the band to make sure that only the necessary mics are on when they should be; otherwise, the cymbals can become excruciating when they kick in."



Afie Jurvanen (piano/guitars) uses two Sennheiser e 609s (taped to his amp); the amp is usually a Fender Bronco and a Fender Blues Junior, but he's been playing through a loaner vintage Teisco, according to monitor engineer Tyler Scollon. The switches above



the keys on his piano are for tone control for the Helpinstill piano pickup and the preamp for the c-tape, as well as his guitar tuner; he injured his knee, so he is currently playing guitar and piano from the same position.



Bryden Baird's (keyboards, trumpet, flugelhorn, Omnichord) mic setup comprises Sennheiser e 609 on Glock and other percussion toys; Omnichord and Autoharp take Radial J48 DIs.



Miking Jesse Baird's drum kit are a complement of Shure models, except for Sennheiser e 609s on snare bottom, which were used instead of Beta 98s to decrease cymbal bleed.



Bassist Jason Baird's metallophone is miked with a Sennheiser e 609, and the sax and melodica are both played through the same 421. His bass has JBL (miked with a Sennheiser 421 or Shure Beta 52) and Traynor Bass Mate amps.



Monitor engineer Tyler Scollon is manning a Yamaha M7CL 48-channel board, running 37 inputs off the desk, plus an ambient. He has Feist's vocal assigned to multiple channels for different songs and positions. The board is also handling six wedge mixes and one ear mix.

"The band plays off of each other and reference to the room and the natural sound of the stage," Scollon says. "The monitor mix needs to work with their sound onstage and blend tonally with the sound of the room and whatever is coming off the P.A. Feist's vocal is extremely quiet, and she uses a single ear with just her vocal and an ambient to reference. Even though the mixes can change quite a bit from venue to venue—depending on the nature of the room, the stage and how much of the P.A. they hear on deck—carrying a small console and mic package ensured that everything was covered and gave them a new level of consistency."



The Police

LONG-AWAITED REUNION, STILL SOUNDING GREAT

By Sarah Benzuly

It's gotta be a tough gig: You're mixing for one of the most recognizable names in rock history who have not toured together—or produced music together—in almost 23 years. Fans pour into the packed stadiums, shelling out top money per seat (the band is donating a portion of the proceeds to WaterAid, a nonprofit organization dedicated to improving sanitation and safe-water access in poor countries), just to get a glimpse of vocalist/bassist Sting, drummer Stewart Copeland and guitarist Andy Summers perform such classic Police hits as “Message in a Bottle,” “Driven to Tears,” “Murder By Numbers” and so many more from their currently \$22 million-selling catalog. Sting told *Rolling Stone* in an interview during tour rehearsals in Vancouver that he committed to a world tour “to go back, retrace those steps and make the band better. I have played these songs for years. I know things about the music I didn't know then or couldn't express. I'm a better bandleader now than I was then.”

But with all of this pomp and circumstance surrounding the tour, it's nice to see front-of-house engineer Mike Keating and monitor engineer Ian Newton staying calm, cool and collected.

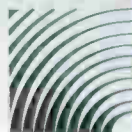
And why not? Keating has been mixing in that capacity for Sting since 1992, while Newton was brought onboard for the last Sting tour, so it's no surprise that they were selected to work on this world tour. “Perhaps I was an obvious choice to maintain some sort of coherency between [Sting's] solo stuff and The Police,” Keating says.

But that's just working with Sting. What happens when you bring



back the other two original members who haven't worked with these engineers before? One would think that that in itself could cause some rough transitions and thinking on their feet. But when we catch up with the tour at Oakland, Calif.'s McAfee Coliseum, Keating reassures *Mix* that neither he nor Newton have really encountered any difficulties with the transition from a solo tour to a reunion one, other than the styles of playing.

thinking sound



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MILO 120	2005
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M'elodie	2007

Mic List

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Drum kit:

Kick: Shure Beta 52, SM91

Snare: SM57 (top), Neumann KM184 (bottom)

Toms: Beyer Opus 87s, 88s

Overheads: Audio-Technica 4050s

Splash Cymbals: Neumann KM184

Guitars: 3x Audio-Technica 4050

Percussion: Neumann KM184s (overheads, bells), Beyer Opus 87s (toms), Beta 52 (bass drum)

Timpani: Sennheiser 421

"Basically," he continues, "being flexible is just part of the mixing—adapting to acoustics and so forth. Also, with a three-piece band, it is inherently raw musically; the band is always evolving and it keeps me on my toes. No set-and-forget here!"

CAST OF CHARACTERS

While both engineers are mixing off the hip during the show, having a full rig—as well

as a full cast of tech crew—supplied by Clair Bros. provides a baseline each night from which to draw. "Ian and I have pretty much hand-picked our crack staff from the rosters of Clair Showco," Keating says. On-hand to help out in any way are Kirk "Fek" Shreiner, FOH system engineer; Aaron Foye, monitor tech/Pro Tools recorder; Tom "Duds" Ford; Sean Bacca; Larry "Redfish" Wilson; and Shaun "Nob" Clair, who, as Keating describes, is working on his "summer boot camp project. We're super-glad he joined us. Their hard work and tireless work ethic is second-to-none and is greatly appreciated by myself, Ian and all onstage.

"The P.A. system is a bit of a hybrid," continues Keating, who is also a 24-year employee of the sound company. "We're using a combination of Clair Bros. i4s and S-4 subs. The subs are both flown and ground-stacked. This P.A. is the best of both worlds: the clarity of the line array, along with that famous S-4 bottom end! It's *bad ass!* Every night when Sting steps on the Taurus pedals, the audience roars for the subs that may blur their vision, among other

things. We have headroom for days."

As the tour is playing to just about every major city in the U.S.—selling out boomy stadiums and arenas, as well as hitting the festival circuit with such notable events as Live Earth (in New Jersey), Bonnaroo Music Festival and Virgin Festival—before jumping the pond to the UK and other destinations in Europe, Keating is constantly mixing for each venue and how it interacts with the P.A. "That's the challenge with live sound," he explains. "If it were easy, anyone with a basement Pro Tools rig or GarageBand program and a bit of mixing experience could



Front-of-house engineer Mike Keating at his analog Yamaha PM5000 board; no digital desks for this road warrior!

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do it. I don't really like to mix all that loud, and in some venues it just sounds worse the more you turn it up. I prefer the sound to be large and not painful. I am instructed to turn it up, and so far no one has complained to my knowledge."

Keating is mixing on a Yamaha PM5000 analog board, using 65 inputs, including effects returns; most of the inputs are designated for percussion. When I ask why he's using an analog board, especially when he's running that many inputs, Keating replies, "Yes, it is *analog*, and may always be. I am just too old school for the digital thing, and every time my laptop crashes or does something on its own, I am that much further from using a mouse to earn a living. Quoting a close audio engineer friend of mine, 'You could mix the show on a Crackberry, but I'd rather have my knobs connected to real audio.'

"I'm using the Lexicon 480, and PCM 70, 90 and 91 units on everything," Keating continues. He's also putting quite a bit of effects on Sting, using a TC-Helicon VoiceWorks vocal harmony processor, which makes one voice into as many as four voices, and a Vocal Doubler and 2290 delay unit on vocals.

Newton is also handling 65 inputs, but

he's working on a digital Yamaha PM1D, adding that all of his effects are onboard.

"We're using a combination of ears and wedges," Newton says. "Sting has Clair Bros. 12AM wedges and Future Sonics Ear Monitors. Andy has Clair 12AM wedges and Ultimate Ear monitors. Stewart has Ultimate Ears and a ButtKicker fitted to his drum stool. We have Clair Bros. R4 sidefills. All of the ear systems are Sennheiser G2 RF systems. We also use Sennheiser RF systems for Stewart's headset mic and the guitar and bass."

Newton is giving each bandmember a straightforward mix: Everyone has a good bit of themselves and a bit less of everything else. Seems that the mix really does mirror the band's rocky breakup and the perceived personal disconnect on this tour. Fortunately, their music still binds them



Ian Newton (right) shows off his Yamaha PM1D desk while tech Aaron Foye tries to keep a straight face.

together onstage—and the fans love it. ■

Sarah Benzuly is the group managing editor for *Mix*, *Electronic Musician* and *Remix* magazines.

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THRILLING EARS AROUND THE WORLD

Velvet Thunder Sound Systems

From Festival Work to Building Own Packages

As you read this, the summer music festival season will be coming to a close. While the larger, more-established festivals are relying on a full complement of gear from high-end sound companies, each region in the U.S. hosts its own locally fed event, becoming the bread-and-butter for that region's sound providers. Wrapping up slew of highly attended gigs is Eugene, Ore.-based Velvet Thunder Sound Systems (www.velvetthundersound.com), which just closed the books on such festivals as String Cheese Incident with Peak Experience Productions at Horning's Hideout, Northwest String Summit with Yonder Mountain String Band, High Sierra Music Festival, the Summer Series of Concerts by Square Peg Productions at Secret House Winery, Zimbabwe Music Festival and the annual Eugene Celebration.

Fortunately, there are many locally funded gigs to contract after those festivals have packed up. According to company co-owner Toni Ehrlich (along with Steve Ehrlich and Bill Walker), VTSS has enjoyed a longtime resident capacity (since 2001) at The McDonald Theatre in downtown Eugene, where the company has supplied top gear for such acts as Robert Cray, the Black Eyed Peas, Evanescence, Slayer, Dark Star Orchestra and many others. "Our relationship with the McDonald Theatre and Kesey Enterprises has brought a new opportunity in the form of the annual concert series at the Cuthbert Amphitheatre here in Eugene," Toni Ehrlich says. "We will be working with Diana Krall, Los Lonely Boys, Gordon Lightfoot, Earth Dance, the Floydian Slips, Floater and others this season. Willie Nelson just graced our stage at the Cuthbert on July 6—a great show, as always."

Ehrlich and the rest of the VTSS crew can cull from an extensive inventory of gear for such events, including its own XLT-3 three-way line array with double 18-inch speaker cabinets, which is built in the company's wood shop. "We have over 40 years of speaker system design and manufacture, and electronic design experience in our R&D team," she continues. "We take a very 'Clair Bros.' approach to our proprietary system." Powering the system are AB International Sub2000/9620/1590 amps, which Ehrlich describes as "little-known and seriously under-appreciated amps with a sophisticated power supply." Complementing the front-of-house inventory are a Midas Heritage 2000, a newly purchased Dolby Lake LP4D12Z and numerous pieces of outboard; an



Velvet Thunder Sound Systems supplied a full complement of SR gear (and a laser show, too!) for the Floydian Slips' performance at the Cuthbert Amphitheatre.

Audient Aztec handles monitoring chores, in addition to company-built wedges (co-ax 12x2s, vocals; 15x2s, drums and sidefill tops) and AB International and QSC amps. The newest item in the shop is a Yamaha M7CL 48-channel digital console, and the company has an eye toward purchasing a Digidesign VENUE.

Company crew includes engineers Oroville Lawton, Claudette and Dana Heitman, and Rich Hipp, who will occasionally sit in on a gig; Frank Rinaldi is on staff for large live recording projects; Anton Ray; Joe Croce; and Jimmy "The P" Purich.

"Our focus has always been live performance," Ehrlich says. "We are also involved in live tracking for bands wishing to record. At this time, we are in the process of acquiring a media supply/duplication/replication business that would allow us to take a project from the stage to point-of-sale."

"Local sound companies today face increasing challenges as more tours travel with less," she continues. "Equipment is expensive; choices must be made wisely. The challenge is always knowing which way the industry is moving and being there ahead of the curve. We have the good fortune to be in a position that allows us to listen to the touring engineers as they come through, listen to and evaluate other P.A.s as often as possible and, of course, listen to our customers—that information is invaluable. As long as our ears and eyes are wide open and we maintain our focus, we will be able to stay competitive in this rapidly changing business. Ultimately, to stay in this business you have to love it." ■

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Peter Kadelbach
K-OS Engineer

PNT02LA

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Toby Francis
FOH Engineer
ZZ Top, Guns N' Roses,
Velvet Revolver



I was the crew chief on the Gobi tent at Coachella and not only was I impressed with the STLA but all of the engineers we worked with had very positive things to say. It's light for a powered box, has tons of horsepower, and goes up and down, quickly and easily.

Hoover
Rat Sound Systems

Honestly, I thought it was solid. I liked it better than many systems. For a compact versatile system, it is definitely worth taking a listen and a look at the numbers.

Dave Rat
Rat Sound Systems



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Brian Schmidt
FOH - Tech, "The Joint"
Hard Rock Hotel, Las Vegas

I'm not even using a processor, and my graphic is flat unless I get into a really tough room or if I'm using less than eight boxes. This PA has made a huge difference in my stress level. I'm really happy with my mix every night.

Steve Emler
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Digital Snakes

By George Petersen

Cable snakes and system interfacing are hardly the stuff that generates huge headlines in the audio press. And 20 years ago, this article would have never existed. But these days, with the industry-wide acceptance of protocols such as EtherSound and CobraNet and the ease of fiber or Cat-5 cabling, copper is definitely on the way out. Expensive and bulky, analog snakes are prone to ground loops, EMI and RF interference while digital systems avoid these dilemmas and others, such as signal losses over long cable runs or the age-old issue of who gets the first split. Offering the ability to carry control information along with multichannel audio feeds, digital provides a flexible, easily reconfigurable solution, whether in the most basic or highly complex installations.

Owners of digital consoles who are looking into a digital snake should begin their quest with the manufacturer, where upgrading to digital-based audio/control distribution may require little more than an interface cable between the console(s) and stage box, or perhaps adding some optional cards. In the market of hardware- and software-driven systems for distributing audio and control data, changes are frequent and continually evolving. With that in mind, we checked in with some third-party suppliers of digital snake products (listed alphabetically).

WHAT'S ON THE MARKET

Unveiled at last fall's AES show in San Francisco, Aphex (www.aphex.com) is now shipping its Model 828 Anaconda, a 64-channel, bi-directional snake that interfaces the company's 1788A remote-controlled preamps to consoles, DAWs and recorders. The first permanent install went into KCET Los Angeles, the country's largest public TV station, linking the studio to a Yamaha digital



The Aphex 828 Anaconda interfaces a 1788A to consoles, DAWs and recorders.

console in its control room 400 feet away using a high-speed fiber line that also carries control (transport, gain, etc.) and metering data to/from the 1788A preamps.

Recent interface/converter peripherals for the Anaconda system include the Model 141 8-channel ADAT-to-analog converter, the Model 142 8-channel analog-to-ADAT converter and the bi-directional Model 144, an AES-to-ADAT and ADAT-to-AES interface that converts four stereo pairs of AES or S/PDIF to/from eight ADAT-format channels.

The news at Aviom (www.aviom.com) is that the Pro64 version of its A-Net technology is finally available. Pro64 A-Net expands on Pro16 A-Net while improving the flexibility of the



Aviom's 6416dio provides 16 digital I/O channels to/from a Pro64 A-Net audio network.

architecture, increasing the channel count to 64x64 (with higher sample rates) and data integration for remote control of mic preamps, network management and distributing user control data. The first Pro64 install handles the tielines from the new Pearl stage at The Palm complex in Las Vegas to the facility's state-of-the-art control room.

Aviom recently unveiled several peripherals that expand the potential of the Pro64 series. A two-rackspace unit, the 6416dio provides 16 digital I/O channels to/from a Pro64 A-Net audio network using the AES-3 format, with support for all sample rates up to 192 kHz. Due out at the end of this month is the 6416Y2, a Y2-format card that interfaces between Yamaha console/mix engines and Aviom's Pro16 personal monitor mixing system. The 6416Y2 supports up to 16 simultaneous I/O channels and handles variable sample rates of 44.1/48 kHz or 88.2/96 kHz. Multiple cards can be used to provide 64x64 capability.

Aviom's new AV-M8 module provides eight mic level signals to a Pro16 system; its AV-P2 outputs two analog channels from a Pro16 A-Net digital audio stream. Multiple modules can be used for increased channels or more splits; both rackmountable modules are shipping.

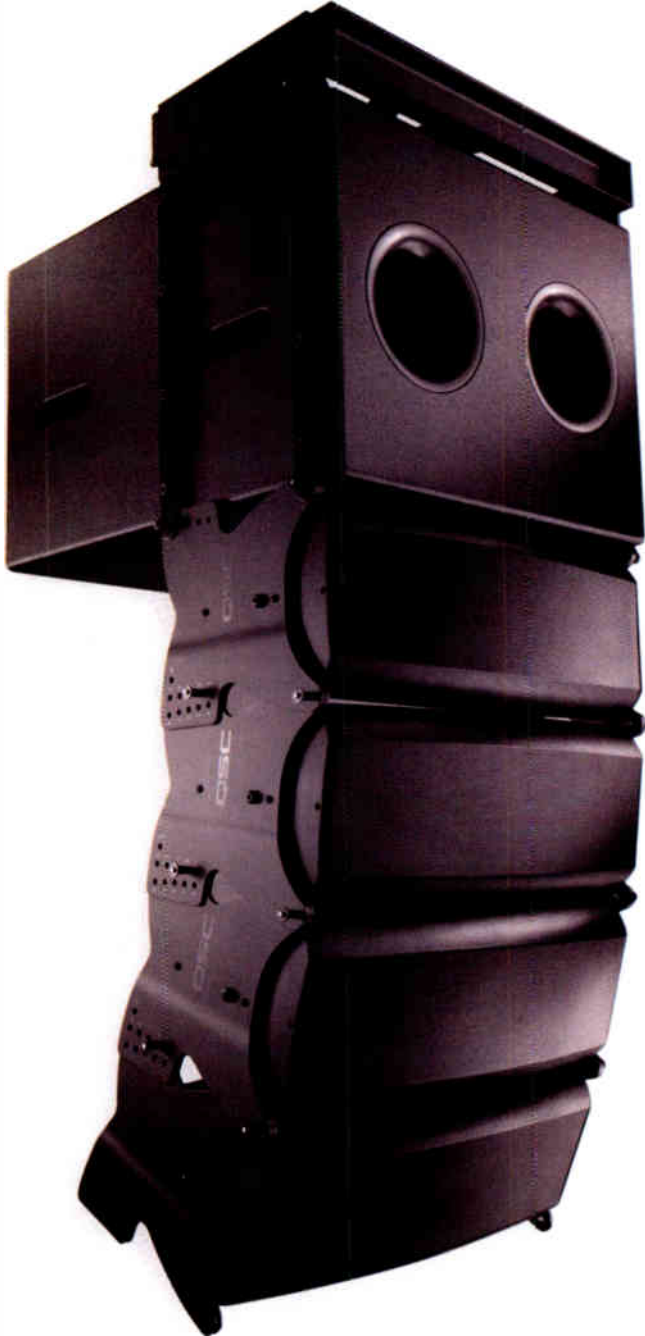
At InfoComm, BSS Audio (www.bssaudio.com) showed a hardware/software update for its Soundweb London range. Users involved with teleconferencing will be interested in software Version 1.14. When combined with a new, dedicated SHARC DSP card, it provides Acoustic Echo Cancellation technology. The card requires a new BLU Series interface (models BLU-80A/32A/16A); these are identical to the existing BLU models except that they have a larger power supply to handle the needs of the SHARC card. Also new is a BLU-555 telephone hybrid.

Digigram (www.digigram.com) is shipping its LX6464ES EtherSound PCI network soundcard, which can transmit and receive 64 EtherSound channels. The card offers a bridge between computer audio apps for recording/playback and an EtherSound network, with DirectSound and ASIO driver support. Also new are three EtherSound-enabled AES/EBU devices: models ES881v2, ES1616v2 and ES1241v2. All new interfaces implement ES100 (the latest upgrade to the EtherSound technology), which permits the design of original network topologies, such as redundant rings. The latter allows automatic redirection of the audio and control data stream in the alternate direction in the event the ring is accidentally broken.

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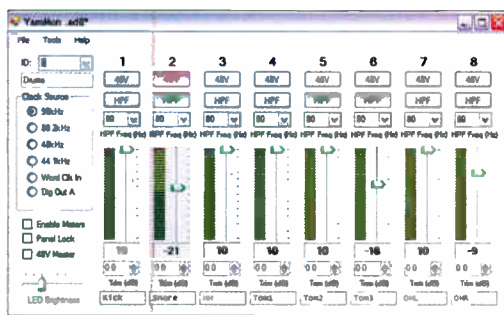
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Hear the Power of Technology

from Fiberplex (www.lightviper.com) are designed to connect Yamaha digital consoles directly to the company's fiber-optic audio snakes. Designed as a plug-and-play solution, two VIM-MY32 card modules (master/slave set) will handle 32 (24-bit/48kHz) audio sends and eight returns via fiber. With an additional card set, a Yamaha PM5D can operate with 64 sends and 16 fiber-optic returns. The cards also support Yamaha's M7CL, DM2000, DM1000 and LS9 units, and control protocol for AD8HR remote mic preamps is provided.

Also new, LightViper's YamMon software lets users of non-Yamaha consoles remotely control up to 255 of Yamaha's AD8HR preamps from a laptop computer. Used with the LightViper 4832 system, this



LightViper YamMon lets non-Yamaha users control up to 255 Yamaha AD8HR pre's from a laptop.

PC app (a Mac version is coming) controls phantom power, HP filter in/out and roll-off frequency, channel level/trim, word clock settings, metering, labeling and more.

Optocore (www.optocore.de) launched the PTP32E, a point-to-point link with redundant fiber connection carrying 32 AES/EBU digital audio channels and bi-directional composite video. Optocore also offers its Y Series network modules for consoles with Yamaha YGD1 mini-slots or the DIO8 for the PM1D, with 64 audio I/Os per module or (with multiple modules) up to 512 channels per Optocore network ring on a single fiber pair. The most recent option for the company's optical network system is the DD8RP Repeater Device, which can expand the system's normal multimode, 700-meter range via four link ports that can operate in standard multimode or be switched to mono mode for runs up to 100 km.

Last fall, Peavey (www.mediamatrix.com) licensed EtherSound technology for its MediaMatrix, Crest Audio, Architectural Acoustics and other brands. No word yet on any EtherSound-enabled MediaMatrix gear, so stay tuned for further developments.



The Roland S-1608 16x8 digital snake is based on the company's REAC protocol.

Meanwhile, MediaMatrix announced its NION nX DSP Audio Node and NIO™ I/O cards. The NION nX core is based on three floating-point SHARC DSPs, and its Scalable I/O Architecture has optional plug-in cards in two module bays supporting up to 16 simultaneous analog audio channels, while an integrated CobraNet port provides 64 channels for a total of 80 simultaneous configurable audio channels. New NIO I/O cards include NIO-AES—offering eight AES pairs (each pair is selectable as input or output channels)—and NIO-8i with eight line inputs (24-bit A/D).

Momentum from Pro Co Sound (www.procomomentum.com) is a modular, expandable (up to 256-input) Ethernet snake system featuring a digital mix engine and numerous connectivity/conversion options. It's based on single-rack-space, 8-channel rackmount modules for input/outputs. A DSP engine can be added to an output unit for use as a personal monitor/distributed audio mixer. It features pro-quality mic preamps, wireless mix engine control and a touchscreen controller for remote system operation. Options include fiber optics, CobraNet, and Phoenix and D-Sub 25 connectors.

The DigiPHY line of RapcoHorizon (www.rapcohorizon.com) Ethernet-based products uses modular 8-channel mic/line input and line-level output units that can be monitored or re-configured on-the-fly locally or remotely via included software. The modules can be connected in daisy-chain, star or mixed topologies using standard or the company's DuraCAT5e Cat-5e cables with Neutrik Ethercon connectors. Inputs have phantom power, programmable gain and 80Hz/12kHz filters.

Roland Systems Group (www.rssamerica.com) is now shipping the S-1608, a digital snake in a fixed 16x8 configuration. Based on the same 24-bit/96kHz low-latency REAC protocol used in the company's flagship S-4000 modular digital snake system,

the S-1608 features 16 mic inputs and eight returns over a standard Cat-5e cable. The S-1608 can also be used with an S-4000 to create a 48-input, 16-return digital snake. Users can also employ the S-1608 in pairs or multiples to create flexible split-stage or stage zone setups. Preamps are controllable using the S-4000R hardware remote or the included RCS software for fast setups with preset memories.

The D32IO-A digital audio snake terminal from Violet Audio (www.violetaudio.com) handles up to 32 channels of 24-bit/96kHz audio over standard Cat-5 cable. The unit acts as an AD/DA converter, digital transmission hub and physical connection terminal, with analog I/O connectivity via four analog D-Sub 25-pin ports. Ports can be factory-preconfigured for operation in either a 32/0, 24/8 or 16/16 implementation, depending on customer needs. Violet Audio also offers rackmount D-Sub breakout boxes with XLRs for AES/EBU or analog signals.

E-MOD networking and I/O module digital interconnects from Whirlwind (www.whirlwindusa.com) offer solutions for nearly any install. The PXP Series converts 16 channels of audio to/from various protocols: PXP-CA (CobraNet-to-Aviom A-Net), PXP-EA (EtherSound-to-A-Net) and the bi-directional PXP-CE (CobraNet-to/from-EtherSound). The two half-rack, 2-channel interfaces include the CO2a (CobraNet to line-level analog output) and the CI2L (line-level to analog to CobraNet input). New 8-channel modules are the CI8L (analog-to-CobraNet input) and CO8a (CobraNet-to-analog outputs), both in single-rack-space packages. About to ship at press time is the CIA (Computer Interface Alternative), which can control Whirlwind's E-Snake directly from a Yamaha digital console, providing access to parameters such as gain and phantom power without the need for a computer. ■

George Petersen is Mix's executive editor.

LS9

M7CL

DM1000

DM2000

PM5D

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*Yamaha digital console models include: LS9/M7CL, DM1000/2000 & PM5D. **Yamaha control protocol for AD8HR remote mic-preamps is also provided through the MY32-enabled fiber connection.

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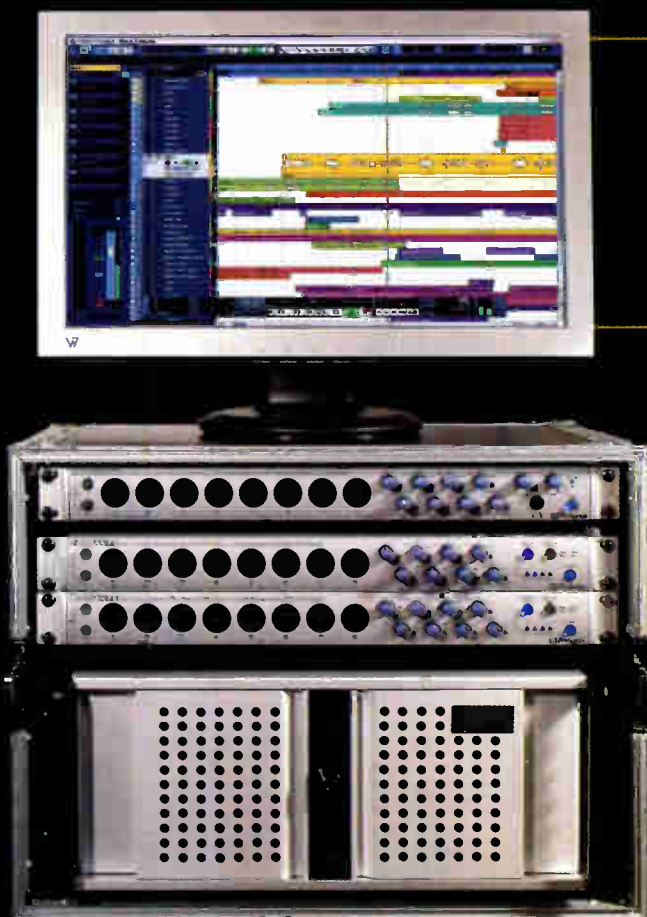
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Music Instruments & Pro Audio

Dare to Compare

Pitting Processing Plug-Ins Against the “Real Thing”

Back in January 2006, I routed one microphone to six preamps for an unconventional series of tests dubbed “Not a Mic Preamp Shootout.” I was willing to accept one compromise: The unique relationship between the mic and the preamp front end would be neutralized, but this setup allowed any one preamp to be subtracted from another to hear the remaining topological differences.

Although I spent the bulk of the time recording drums—which are good for evaluating overload characteristics—I planned future tests to focus on voice, which is better for discerning amplifier and capsule nuances.

Earlier this year, I was asked to compare analog hardware with software signal processing. This time, local engineers were invited to contribute raw and processed samples. These sessions were called “Dare 2 Compare.” I not only analyzed their files, but attempted to re-create their tests using generic and hardware-specific plug-ins. Digidesign Pro Tools, Soundscape and Adobe Audition were my “analysis tools.”

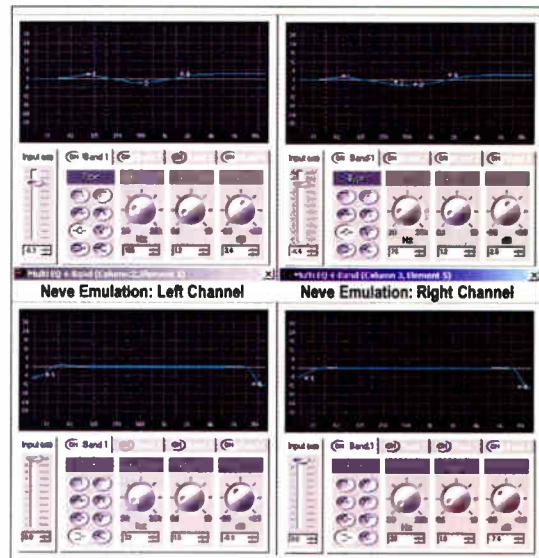
As the initial samples came in, I encountered an analysis problem: Everyone dismissed the software because they felt it wasn’t even close to delivering the sound provided by the hardware. This was not initially the fault of the software, but was rather due to the hardware’s inconsistencies.

A perfect example is the Neve 1064/1066/1073 pre-amp/EQ modules. There’s no way that a pair of vintage or retro-modern analog hardware equalizers can be made to agree simply by putting their knobs in the same place. So don’t expect “identical knob settings” on software to match the hardware.

For example, consider someone who’s applying analog EQ to a stereo track. The first step is to artistically approximate the EQ, but if you feed pink noise to both EQ units, reversed the polarity of one and summed, you’d notice that the two equalizers are nowhere near being matched, which is an opportunity to tweak the EQ bands on each channel for the best null.

The fact that few engineers take this extra step quite literally adds dimension to the stereo track because ballparked (unmatched) dual-mono EQ settings introduce phase shift that make the stereo image “wider,” which is one of the inverse complaints people have with digital—it doesn’t exhibit the dimensionality of analog—even when comparing converters.

I compared some well-known hardware (API, dbx, Neve, Universal Audio/UREI and Alan Smart) and software (Digidesign Smack!, Bomb Factory 1176, and URS’ Neve and API plugs), along with some generic Soundscape and Pro Tools signal processors.



Top: Separate left and right Soundscape plug-ins re-create the Neve 1064 EQ. The curves are similar but not perfect. **Bottom:** An additional instance per channel was required to achieve a more perfect null; very little needed to be done.

IN THE BEGINNING

Sonic comparisons always start out the same way: Establish a repeatable “procedure” that ensures a “level” playing field. Getting the procedure right will consume a considerable amount of time, sometimes more than the actual tests. The first step is to optimize the gain structure for headroom and noise, followed by matching the signal levels of all the gear being evaluated. The latter can be as simple as routing an oscillator to the devices under test, measuring the level with a precision meter and trimming the level to achieve a match that is hopefully within 0.1 dB and does not exceed 0.25 dB.

Another way to confirm the level match is to subtract one device from another by reversing the polarity in *one* of the signal paths and then “summing,” which is, in reality, subtraction. A full 180-degree shift constitutes polarity inversion, so here we’re using our ears as distortion analyzers. There will be subtle phase issues caused by the number of gain stages and the coupling capacitors between them. Each capacitor in the chain can cause small amounts of phase shift. Discrete and IC *op amp* circuits—from API to Avalon, Crane Song to Grace and even Mackie—have less phase shift than old-school discrete circuits like models from Great River, Neve and Telefunken.

When one group is subtracted from another, what often remains after the levels have been trimmed for the best null are spectral extremes—low bass and high



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treble that are not exactly in phase, along with harmonics that are in addition to the original signal. Now add EQ, dynamics processing and "digital" to the mix, and all of a sudden you've got to keep track of intended phase shift (EQ does this), attack and release parameters, and latency.

TIME TUNNEL

In addition to level matching, it's also necessary to confirm time-alignment. Playing a reference file from the workstation through a D/A converter and then looping *back* through the A/D converter for recapture will have a few samples of delay as determined mostly by the sample rate. All digital processes—the obvious, such as EQ or dynamics, and less obvious, such as routing—create additional delays. While all workstations should include delay compensation, individual delays were inserted into each channel to allow null confirmation.

Latency is the digital equivalent of phase shift, and even if your software is supposed to keep track of such things, you still need confirmation. For the above example, an obvious delay must be applied to sync the reference file relative to the captured file. I also did this when comparing analog-processed tracks to their digital counterparts. The null point was very obvious with the tests (44.1/24); higher sample-rate yields would provide smaller sample-delay steps.

DRUM ROLL, PLEASE

One of the first audio samples was a stereo drum submix EQ'd through a pair of Neve 1064 modules. I imported the raw and EQ'd tracks into Soundscape and, using its generic stereo EQ plug-in, noticed right away that the left and right channel's null points were not the same for what are now obvious reasons. A digital stereo EQ plug-in is "perfect" in terms of channel matching, but in this case, separate left and right equalizers were opened so that each channel null could be optimized. Interestingly, it took two Soundscape EQ instances per channel to match the Neve 1064. (See the graphic on page 98.)

At the moment, I can only speculate as to why it took two EQ instances to equal the 1064. Here are my two theories: Digital equalizers are based on "ideal" components and analog components operate most decidedly in the real world. Perhaps doubling the sample rate might have allowed more resolution. Either way, once a good null was achieved, the actual sonic comparison was pretty impressive. When

listening to *only* the null, just a few of the snare hits popped through as they saturated the Neve's amps.

DYNAMIC DUO

With dynamics processors, the intended signal processing can be fairly easily approximated. However, the matching process requires a much deeper level of patience as there are so many different parameters—ratio, threshold, knee, attack and release—all of which are interactive. Here, again, unless an analog device has stepped switches (stuffed with precision 1-percent resistors) instead of pots, no two will match each other, let alone a piece of software.

Two hardware versions of the 1176 were compared—a Silver UREI and Universal Audio black-face reissues, along with Bomb Factory and generic plugs. No one thought to attempt a hardware null; it was late and we were on borrowed time. Needless to say, they weren't even close. However, once under null scrutiny, the completely different distortion characteristics of each box were obvious.

Comparing equalizers and compressor/limiters—hard and soft—will, at minimum, enhance your tweaking skills. You can expect a lot of dialing and tweaking, but when that null starts to happen, it's like a videogame, opening you up to a hidden world of distortion artifacts.

FINAL NOTES

I went into this experiment with one bias and one expectation. I find the emphasis on replicating the graphic "skin" of vintage gear either distracting or a bit over the top. What I came to learn is that the graphics are easily accomplished and that our "desire" for signal processing on every channel puts a severe emphasis on making plug-ins efficient.

At some point, however, I am hoping that software emulation will evolve to the point where individual components and stages will be isolated—give me "just" the input attenuator and "ouncer" transformer of an 1176, for example. This would be proof to me that the ghosts in the machine are written into the code. ■

Eddie would like to thank Tom Tucker (for inspiring this experiment), Tom Garneau, Adam Krinsky, Colt Leeb, Steve Hodge, Peter Bregman, Dusty Miller, Colin McArdell, David Hedding (for supplying samples) and Jason Orris (for supplying hardware). Want more? Visit www.tangible-technology.com and click on the D2C link for samples.

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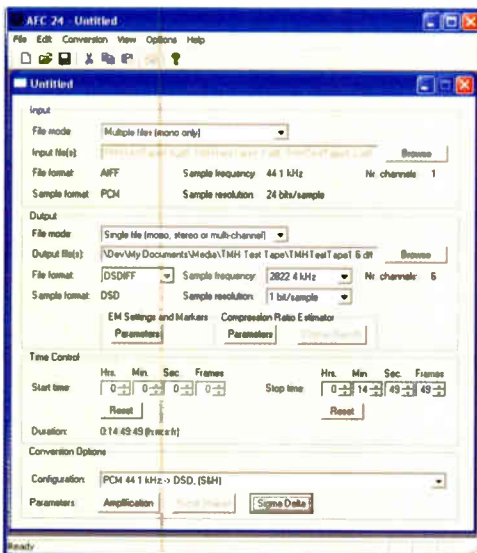
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Tools of the Trade



SONIC STUDIO AFC24

The AFC24 (\$4,395) transcoding package from Sonic Studio (www.sonicstudio.com) offers rapid sample rate conversion for large amounts of audio. The Windows software handles up to 24 channels of fully adjustable SRC and bidirectional PCM-to-DSD and DSD-to-PCM interchange. Supported formats include WAV, AIFF, AIFF-C and BWF, with PCM sample rate conversion from 44.1 kHz up to 2.8224 MHz as batches or single files. For SACD authoring, a Compression Ratio Estimator feature measures DST lossless compression-encoding gains. AFC24 also multiplexes, de-multiplexes and remodulates DSD data and creates DSDIFF EM or Edit Master files. Nine distinct delta sigma modulators are available, including the Trellis E algorithm with adjustable path length for the highest fidelity at the smallest file size.

GHOST ACOUSTICS ACOUSTIC PANELS

Ghost Acoustics' (dist. by Sonic Distribution, www.sonicus.net) acoustic absorption panels feature a layered design of highly compressed glass fiber and layers of micro-thin flexible aluminum, offering broad-



band absorption said to be well-suited for the problematic low-frequency area. Absorptive layers are housed in an aluminum/steel inner frame that is wall-mounted via a detachable, damped metal frame, which provides airspace behind the unit. The series includes five products in charcoal or light gray (including the corner trap shown); all are Class-A fire-retardant.

THERMIONIC CULTURE EARLYBIRD 2.2, PULLET

The latest flight of Thermionic Culture's (www.thermioniculture.com) Earlybird 2.2 (\$4,604), a 2-channel tube mic/line preamp featuring an optional sidekick called the Pullet (\$1,514). This add-on unit is a 2-channel passive boost/cut EQ with six midrange and three HF bands. As a pas-



sive device, it needs 40 dB of make-up gain boosting at the back end, which the Earlybird 2.2 provides via a second set of switchable line inputs. When not used as a Pullet booster, the Earlybird 2.2 functions as two mic pre's with variable input impedance and onboard, switchable active EQ across the low, mid- and high bands; separate output trims; polarity switches; and dual VU meters.

IMR VORTEX SURROUND DESIGNER

The Vortex Surround Designer from Immersive Media Research (www.im-research.com) generates psychoacoustic cues that create a surround panning effect from mono and stereo sound files. It uses pitch, reverb and amplitude variations

to create Doppler shifts that are created/edited in a graphic-authoring window and arranged with a visual reference to the file being processed. Once the sound file is processed, the output is saved to a new multichannel sound file. The associated panning breakpoints and DSP envelopes are saved to separate files, so all spatialization instructions can be edited or re-used, leaving the original sound file unchanged. Other features include channel-balance test routines for speaker setup, waveform-based GUI, path/file looping and I/O mapping for interapplication processing. It's compatible with AIFF, WAV and SDII file formats.

CEDAR DNS 2000 FOR MAC/PC

Cedar's (www.cedaraudio.com) DNS 2000 dialog noise suppressor is now compatible with Pro Tools for PCs and Intel Macs.

Customers who purchased the hardware unit after June 8, 2007, have a completely generic processor, which means it can connect to a PC on one day and to a Mac



on the next, as needed. The unit also integrates with all of Digidesign's control surfaces, such as the D-Command and ICON systems, on PC or Mac platforms. The Remote-Control Software (RCS) can support and control up to 128 DNS 2000 hardware units for those *really* big jobs. The latest RCS and firmware downloads are available from Cedar's Website.

DISC MAKERS MEDLEY DUPLICATOR

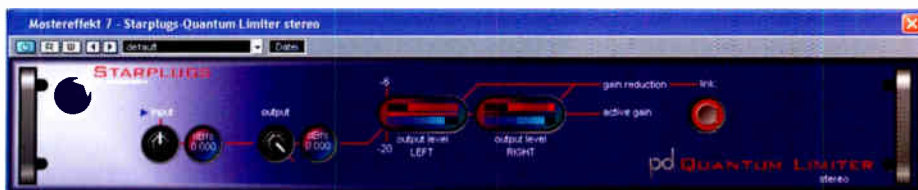
The Medley (\$1,799) from Disc Makers (www.discmakers.com) not only makes CDs and DVDs, but also features on-disc printing



and integrates with iTunes and the Windows Media Player. The 9.5x19x17-inch (HxWxD) unit fits in tight spaces, and offers a 50-disc capacity, independently mounted disc-transport robotics, built-in CMYK 4,800 dpi inkjet printer and one dual-layer-capable 18x DVD/48x CD drive. Medley connects to any Windows PC via USB 2, and includes cables, graphics software and a one-year warranty.

STARPLUGS QUANTUM LIMITER

This instantiate-and-forget limiter (\$39.95) from Starplugs (www.starplugs.com) boasts no distortion, no pumping, no ducking, no



delay and an easy-set GUI that eschews the usual settings associated with other hardware or software limiters. The company claims this VST plug "listens" to your track and assesses the best possible limiting solution for the situation. Features include 1-sample reaction time, audio-related attack/release/hold times, a stereo link button, and separate output level and gain-reduction meters.

SONOMA WIREWORKS RIFFWORKS STANDARD

Midnight guitar-shredders and recordists will want to check out RiffWorks Standard (\$169) from Sonoma WireWorks (www.sonomawireworks.com). It offers a feature-rich interface that automatically creates tracks and offers loop recording in 24 layers with seven effects, including wah, multiband compression, distortion, modulation, delay, reverb and EQ. The user can mix to WAV or Ogg Vorbis formats and then podcast the tracks using the integrated RiffCaster. Optional is RiffLink, an online collaboration tool that features instant track streaming to other users and an online chat client. RiffWorks Standard supports Windows XP ASIO and Mac OS Core Audio interfaces.

PRESONUS MONITOR STATION REMOTE

The PreSonus (www.presonus.com) Monitor Station Remote (\$229.95) connects to the company's FireStudio via standard



Cat-5 Ethernet cable and offers surround sound/stereo speaker management, input switching and a talkback system with built-in mic. It also has two separately adjustable headphone outs and mute dim mono switches, and integrates with the FireStudio's Control Console routing/mixing software for greater control of track routing, mixing and I/O switching.



NEUMANN KK CAPSULES

These three new capsules (\$799 each) from Neumann (www.neumannusa.com) expand on the company's Solution-D KM D miniature microphone system. The additions include the KK 131 free-field equalized omni, KK 143 wide-cardioid and the KK 145 cardioid with highpass. The KM D miniature mics have a 3-pin XLR connector to transmit a bidirectional signal conforming to the AES-42 standard. This signal carries the balanced digital mic output signal, phantom power and a remote-control data stream that also has a signal to sync the mic with a master clock. The mic and capsules come in classic nickel and black Nextel finish. All standard sampling frequencies are supported, from 44.1 to 192 kHz.

TRUE SYSTEMS

P-SOLO RIBBON PREAMP

Offering features optimized for ribbon and/or dynamic mics, the single-channel P-SOLO (\$745) ribbon preamp from TRUE Systems (www.true-systems.com) uses the same balanced, transformerless



circuitry used in the company's Precision 8 and P2 analog preamps. P-SOLO is built using military-grade, hand-matched components, and features a highpass filter, dual analog outputs, hi-Z instrument input and four-level metering. Designed for ribbon and dynamic mics, it has no phantom power and offers high input impedance and extra gain.

AURALEX SPACEARRAY DIFFUSER

The SpaceArray (\$399 each) acoustical diffuser from Auralex Acoustics (www.auralexelite.com), designed by Russ Berger, offers hemispherical acoustical diffusion in a wood finish. The Class-B, fire-rated product passed testing in accordance with ASTM E84, a standard test for surface-burning characteristics of building materials, and acoustical testing in accordance with ISO 17497-1, a standard test for sound-scattering coefficients. Each paulownia wood panel measures 24x24 inches.



and ground lift. The compact 4.5x2.5x1.5-inch box contains a shielded transformer and Neutrik gold-pin XLR connectors.

HOW AUDIO TRAINING

Howaudio.com is a subscription-based Website with training on both music/audio software and topics such as musical instruments, hardware and music business. Currently, it includes Digidesign Pro Tools, Sony Sound Forge, Finale, Apple GarageBand and MOTU Digital Performer; Ableton Live 5, Apple Logic Pro/Soundtrack Pro, Cakewalk SONAR 5, Propellerhead Reason, Steinberg Cubase SX3, Audacity Mixcraft, BIAS Peak

Pro, Sony ACID Pro 6 and Adobe Audition are coming soon. Users can subscribe for a 30-day, all-access trial for \$19.99; \$199 buys one year of access to all current and future content. Lesson DVDs can also be purchased online. ■

CABLE TECHNIQUES XTRAGOOD

The 1-in, 2-out Xtragood Mic Splitter (\$199, mono version; \$299, stereo version) is a simple but often-needed problem-solver from Cable Techniques (www.cabletechniques.com). The sturdy, all-metal box offers a loop-thru with secondary, isolated output



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Bryan Carlstrom
Engineer / Mixer

Credits include: Alice in Chains, The Offspring, Social Distortion, Anthrax & Rob Zombie



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Dave Bascombe
Mixer

Credits include: Placebo, Funeral For A Friend, A-ha, Goldfrapp, Soulwax, Korn, Stereophonics, Natalie Imbruglia, Sheryl Crow, Depeche Mode & Tears For Fears



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Marshall Jefferson
God Father of House

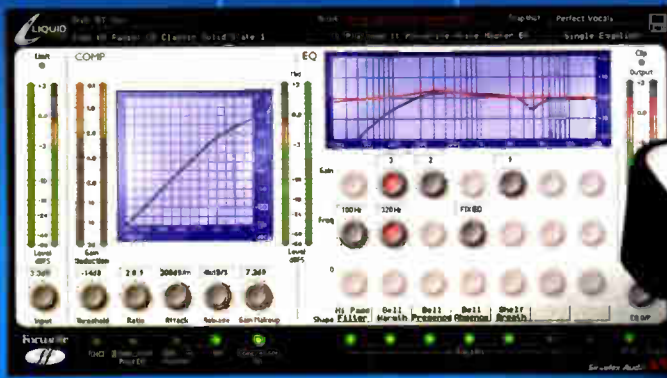


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Andy Bradfield
Producer/Mixer

Credits include: Josh Groban, Rufus Wainwright, David Gray, Marc Almond, Luke Toms, Everything But The Girl, The Answer, Moulin Rouge, Miguel Bose & Meck



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One of the obstacles facing many engineers working small live sound events is having to drag the P.A. from venue to venue and constantly changing the setup. The Yamaha EMX5016CF portable mixer is designed to alleviate those P.A. woes for portable and installed applications where versatility and simplicity are paramount. Priced at \$1,249 (MSRP) and combining a 16-channel mixer with a stereo power amp, built-in effects, digital EQ and a feedback eliminator, the EMX5016CF is a workhorse that provides intuitive operation.

FEATURES AND FX

The EMX5016CF has eight mono input channels (XLR mic or TRS line), each with 3-band EQ, insert, two aux sends, two effects sends to internal DSPs and 48-volt phantom power. Four stereo channels accept mono XLR mic or stereo 1/4-inch or RCA inputs. The effects section's two DSP engines are based on Yamaha's ubiquitous SPX algorithms. The master output bus is available on 1/4-inch stereo outs, RCA "record outs" and two stereo sub outs, in addition to the speaker outs.

All channels and the two effects returns route PFL to a headphone jack with level control. The eight mono channels include a one-knob compressor, which simultaneously raises the compression ratio and adjusts the makeup gain. In some applications (e.g., snare drum), I heard too much makeup gain, but I found the compressor to be effective for smoothing bass and vocals.

Both stereo effects processors have 16 presets, including reverb, delay, tremolo, chorus, phaser and other effects. These are returned on "mini-channels" with PFL, on/off, and aux 1 and aux 2 send controls, so routing effects into the monitors was an easy task. A knob for each effect modifies a single parameter, so adjustment is limited. Some of my faves were early reflections on snare and chorus on clean electric guitar.

TAKE ME TO YOUR MASTER

Located near the master section is a 9-band digital EQ. Each band has an LED bar graph and "±" buttons for adjusting gain. Memory slots allow quick recall of three fac-

tory presets (vocal/dance/speech) and three user-defined EQ curves. The EQ looked intimidating, yet operation was intuitive: I could easily set my own presets on-the-fly without consulting the manual.

Working with the EQ section is a feedback suppressor and Frequency Response Correction (FRC) system. The feedback suppressor's Auto mode worked well, though I could sometimes hear the filter shifting back and forth between ringing frequencies. FRC is an auto-analysis program that analyzes noise (or music), calculates a suggested EQ curve for correction and displays the curve on the EQ graph. This function worked fine, though I typically tweaked the result by ear.

IN THE TRENCHES

Using the mixer in the field revealed a lot of strengths and some weaknesses. On the plus side, the power amps are configurable in several ways. Speaker level output is delivered via parallel Speakon and 1/4-inch outputs, typically used for the L/R mains. A front panel switch lets you derive the two power amps from L/R, aux 1/mono or aux 1/aux 2 buses. A three-way switch sets maximum speaker output to 75/200/500 watts per channel. On gigs with a pianist and a Neapolitan tenor, I could customize the EMX5016CF for the venue. At a small restaurant (where no monitors are needed), I set the speaker outs to L/R at 75W. A larger room required a monitor, so the EMX5016CF was set to output mono/aux 1. On an upcoming gig in a dance hall where I'll need two monitors, I'll simply set the unit's outs for aux 1/aux 2 and use the stereo output to drive an external power amp for the mains—a great example of the unit's versatility.

I do have a few criticisms about the mixer. Patching a signal into either the left or right jack of a stereo channel will deliver that signal to only the respective bus; many mixers automatically switch a channel to mono when you patch into a



single jack of a stereo channel. However, patching a mic into a stereo channel delivers signal to the L and R buses. There is no indication of PFL (or APL) other than the position of the button, making it difficult to see exactly which channels are being cued. Same thing for the compressor, though you'll be able to hear it. Occasionally, I'd hear a pop when turning phantom power on, even if no mics were plugged into any of the channels.

POWER AND MORE

In addition to excellent sound quality and ample headroom, the EMX5016CF is easy to use. Even with all of its features, you'll hardly need the manual due to the board's intelligent design. One example of the EMX5016CF's clever functionality is a Standby switch that mutes channels 1 through 8 while leaving the stereo channels unmuted to provide background music between sets. And because each effect has a footswitch-bypass jack, it's easy to turn off effects in-between songs. I loved the output power range switch: Finally, you won't have to compromise gain structure when using a powered mixer. If you're in the market for a powered mixer, you need to take a look at this one.

Yamaha, 714/522-9011, www.yamaha.com/livesound.

Steve La Cerra is Mix's sound reinforcement editor.

MANLEY

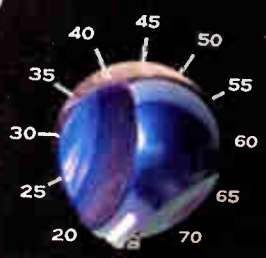


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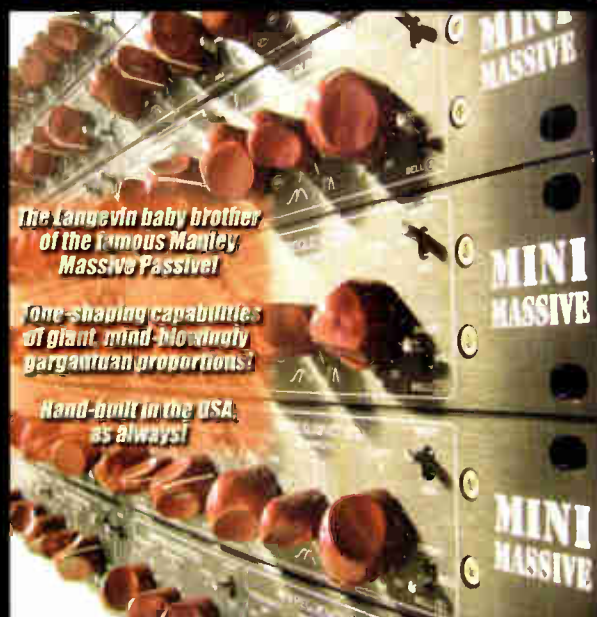
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Rupert Neve Designs Portico 5014 Field Editor

Line-Level, Mid-Side Stereo Processor Enters Uncrowded Market

Mid-Side (M-S) processing gives you unrivaled control over stereo program material by allowing independent treatment of its sum and difference components. One basic application of M-S processing is the ability to adjust the level of a mix's stereo effects, natural ambience and hard-panned tracks (the Side, or difference signal) with respect to center-panned elements such as kick, snare, bass and lead vocals (the Mid, or sum signal). More advanced treatments involve applying compression, EQ and/or other signal processing independently to sum and difference channels before recombining them back into a conventional stereo channel.

M-S processing can also be used during mixdown to dry up individual stereo tracks that are drowning in embedded reverb or increase the amount of ambience in, for example, drum room mics. Yet for all of its tremendous power and flexibility, there are few line-level M-S processors on the market. The Rupert Neve Designs Portico 5014 stereo field editor is designed to fill that gap.

MODULAR AND PORTABLE

The half-rackspace 5014 is part of Rupert Neve Designs' Portico line of analog processors, which can be interconnected via ¼-inch bus jacks on each unit's rear panel to form a system with many of the same capabilities of a modular production console. Portico gear can run on AC power or an external 9 to 18VDC source.

Rotary front panel trim pots provide -6 to +12 dB of left- or right-level adjustment. Each channel also has a polarity-inversion switch and 8-segment LED meters, which are globally switchable to show input or output levels.

Width, depth and EQ facilities feature continuously variable controls and can be individually bypassed. The width control adjusts the stereo image's width—from mono to potentially much wider than it was originally—by manipulating phase. Depth changes the phase relationship between left and right channels to move center-panned elements forward or backward in the mix. A single-band bell-curve equalizer serves the



difference channel only, providing up to 15 dB of boost/cut at a continuously variable center frequency of 120 to 2.4k Hz, and offers a choice of two Q values (0.7 and 5).

TRS insert jacks can be switched into the difference channel for connecting to outboard signal processors. Another switch selects between the XLR I/Os and the ¼-inch bus jacks for L/R inputs. The XLRs are balanced using proprietary transformers. The rear panel also has a co-ax connector for the 5014's lump-in-the-line power supply.

MAKING A DIFFERENCE

The 5014's biggest omission is a lack of inserts for the sum (Mid) channel, precluding independent treatment of center-panned elements in stereo material. Also, the lack of detents and dearth of screened values for intermediate settings on control knobs complicate the 5014's use in mastering apps.

Nevertheless, I gave the unit a shot in mastering a problematic pop mix in which the engineer had rolled off the bottom end on drums and bass while tracking. Many stereo-miked tracks and regular use of compression and brickwall limiting on both vocals and instruments contributed to a crowded, midrange-y mix that lacked punch and detail, which was exacerbated by the drums being mixed too low.

A typical approach here would include boosting the low end and level on the Mid channel to restore punch. The 5014 does not provide onboard EQ or inserts for the Mid channel, so I had to work in reverse: boosting the low end *before* input to the 5014 and then EQ'ing out the resulting mud in the 5014's difference channel. The 5014's onboard EQ wasn't exacting enough for EQ'ing the difference channel in this instance, so I used a Rupert Neve Designs 5033 equalizer that was patched to the

5014's inserts. Using the 5014's width control to widen the mix compensated for my upstream bass boost, which pulled the image toward center. Setting the depth control to the 10 o'clock position brought the vocal forward and further increased clarity. The result was a beefier, yet reasonably clear master. On another mix, I successfully used the 5014's width control to boost the level of hard-panned electric guitars and drum overhead and room mics.

I also tried treating only the stereo room mics for a drum kit with the 5014. Raising the width control made the cymbals louder and spread the room tone within the stereo field for a wider-sounding effect. The depth control (whose action is highly source-dependent) had only a subtle effect here, making the sound slightly more ghostlike as the knob was turned counterclockwise. I got similar results using the 5014 on stereo-miked piano and Sonic Implants Symphonic Strings tracks. In most cases where the difference signal needed EQ, I found myself wishing the 5014's filter type was low-shelving or highpass instead of bell-curve, and ended up using an outboard equalizer instead.

SUMMING UP

The best I can say about the 5014 is that it performs well in getting half the job done. The lack of control over the Mid channel seriously limits the unit's usefulness. For what the 5014 does, the \$1,795 list is a bit pricey. My search for an affordable yet full-function line-level M-S processor continues.

Rupert Neve Designs, 512/847-3013, www.rupertneve.com. ■

Mix contributing editor Michael Cooper is the owner of Michael Cooper Recording in Sisters, Ore. Visit him at www.myspace.com/michaelcooperrecording.

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World Radio History

Heil PR30, PR40 Microphones

Surprising Rich Tone, Versatility From Dynamic Models

Even though the Heil PR30 (right) and PR40 large-diaphragm dynamic mics look like side-address models, they are front-firing. The PR30 is 6.5x1.75 inches, weighs in at a trim 9 ounces and uses a large 1.5-inch transducer. Its shape, weight and sturdy standmount allow you to tuck the mic into tight spaces without fearing that it will sag or get in the way of drums or other adjacent mics. The slightly larger (6.75x2.10-inch) PR40 weighs 13.5 ounces. Although the PR40 is larger, it uses a smaller 1.13-inch element.

The mics each have two different-diameter mesh screens and a "breath blast" filter to keep pops to a minimum during voice applications. The elements are isolated via a Sorbothane shock-mount on top of a non-resonant fixture, which effectively decouples the elements from the steel case.

Both come in a matte-champagne finish and include well-designed, burly standmounts. The PR40 (below) arrives in a metal "lunchbox" case with a handle; the PR30 ships in a box surrounded by foam. An optional SM2B shock-mount fits either mic.



GOING PRIME-TIME

One way to harvest great tones from a drum kit is to mike the toms' top and bottom heads. The PR30 and PR40 worked well as a team on a low tom, with the PR30 on top and the PR40 providing added low tone from underneath. When I flipped the polarity on the bottom mic, which is naturally out of polarity due to its opposite placement, the sound was thunderous. Stick attack and transient response from the PR30 had the tom sounding great on top, while the feed provided by the PR40 from the bottom added lots of warm low-frequency tone to the mix, making it a winner in this application.

One remarkable thing I noticed was that the PR30 has a tendency to round out the transient in a beneficial way, almost as though it mildly compresses the signal. This was subtle, yet noticeable in a number of high-transient applications. Heil claims that this sounds like the response you would get from a ribbon mic, and I'd have to agree that the effect is similar to that.

I then used the PR30 on a snare drum with good results. The mic has plenty of great-sounding upper-mids and top end for a dynamic model, and reacted well when I tried to dig out 150 Hz to make the bottom end of this thin snare sound a bit bigger. As mentioned, the mic has a tendency to round out transient hits when used with a high-SPL source, and the snare was no different. When I added a Shure SM81 to the bottom of the drum and flipped the polarity to pick up the snare component, it mixed very well with the PR30, providing plenty of snap to the drum and overall mix. Using the PR40 on the same snare, I noticed it offered more bottom end than the PR30.



The PR30 sounded great on a Fender SuperSonic guitar cabinet with a single 12-inch speaker. Both mics were equidistant from the grille cloth and about four inches off the edge of the dust cone. I first isolated both mics to hear the difference. The PR30 had a bit more top end and was more balanced through the spectrum, while an SM57 sounded thicker in the lower midrange. When I added them together, it was the perfect marriage: The PR30 made up for the upper-mids and top end that was lacking on the 57, while the 57 brought up the lower-mids.

HEIL-Y DELICIOUS

After talking to Bob Heil about his mic line during this year's NAB show in Las Vegas, I was intrigued. If you have ever met him, then you know that he's quite the evangelist for his mics. I tend to leave my hype filter set on high for any review, and I must admit I was a bit skeptical about his claims, but I couldn't have been more wrong. The PR30's promised "ribbon-y" response was borne out in repeated applications. Used on various drums, guitar cabinets and vocals, the tone was stellar.

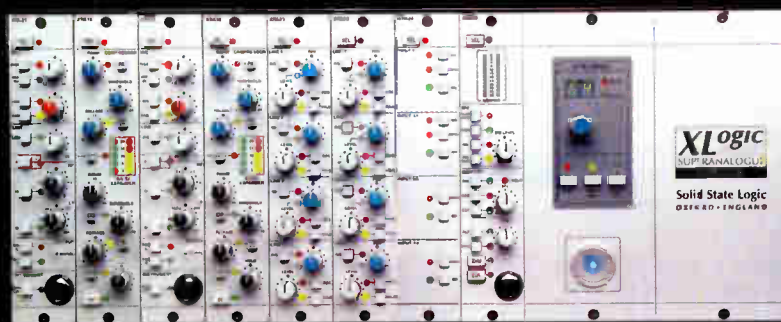
The PR30 and PR40 are brawny units, with beefy mounts, steel bodies and sturdy grilles that would probably survive a tumble, although that wasn't part of the test. They sound great in the usual high-SPL applications where you'd imagine a dynamic to shine and are quite affordable. If you've ever thought that dynamic mics were dull workhorses, then you need to check out these Heil mics. Prices: PR30, \$299; PR40, \$375; and SM2B shock-mount, \$95.

Heil Sound, 618/257-3000; www.heilsound.com.

Kevin Becka is Mix's technical editor.

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Drawmer S3 Multiband Tube Compressor

Three-Stage Unit Provides Musically Pleasing Options

For years, multiband compressors have been the strict purview of mastering and broadcast engineers. They've seldom found use in music recording studios because of their inherent complexity and the potential for catastrophe if incorrectly set.

First in Ivor Drawmer's Signature Series, the \$6,995 S3 3-band compressor, reinvents the arcane multiband process using 10 tubes and three identical Class-A, fully balanced stereo signal paths. The S3 is easy to use, and it achieves a depth of precision in spectral dynamic control that is not possible with a single-band compressor.

IMPRESSIVE OUTSIDE AND IN

A pair of large, backlit VU meters and stylish engraved borders around each processor section dominate the beautiful black gloss of the three-rackspace front panel. High-contrast white lettering, Ivor Drawmer's signature and an intuitive layout complete the look of this future classic.

Inside the well-vented cabinet, eight 12AX7s and two 12BH7s (secured by wire clamps) surround a large toroidal power transformer. All components, including the custom-made Stevens and Billington I/O transformers, are mounted on a thick PC board. The S3 generates considerable heat so keep an air space around it in your rack. All of the S3's Omeg conductive plastic pots have a nice, damped feeling to them—no need to worry about settings changing if someone accidentally brushes up against them.

At the heart of the S3 are three optical light-dependent resistor elements (LDRs) for both left and right channel—six total. To optimize compressor tracking performance, the LDRs must behave identically and therefore are encased in two small ovens (one for each channel), running at 50 degrees centigrade. About two minutes after power-up, a front panel indicator shows the LDRs have reached operating temperature.

THREE OF EVERYTHING

The multiband compression process starts with stereo audio being divided into three frequency bands—high, mid and low—us-



ing two gentle 6dB/octave passive filters. The Low-Split control sets the frequency (60 to 1.4k Hz) where the audio is divided between the low and mid-band, while the High-Split knob (1.4 to 14 kHz) sets the mid/high-band dividing point. Once separated, each band's audio output is routed to its own stereo compressor section.

The controls for each band are identical and include separate threshold, attack time, release time and make-up gain. The three make-up gain controls also function as a 3-channel stereo mixer to recombine each of the bands' audio output back into a composite stereo audio signal.

Each band's threshold is adjustable from infinity (off) to -32 dB, and an 8-segment LED meter indicates gain reduction for each band. Attack time choices are 0.2/ 2/5/10/20/50 ms; release times are 80/300/1,000 ms. There are also three program-dependent release times: fast (100 to 500 ms), medium (300 ms to 2 seconds) and slow (500 ms to 5 seconds). The program-dependent compression ratio increases with input level. The 1.05:1 starting ratio is very low; the highest ratio possible at a maximum gain reduction of more than 20 dB for each band section is about 5:1.

Three bypass switches let you A/B each compressor's effect to the overall sound. For example, you can compress only the low band—i.e., for recording bass guitar—or compress a vocal solely in the mid- and low bands, leaving the high band open and uncompressed. Additionally, three

Normal/Mute switches can add/subtract a band section's contribution to the stereo output to audition each band separately or in combination.

BIG AIR

The Big switch on the low-band compressor inserts a passive 100Hz, 6dB/octave shelving filter into the compressor sidechain. Engaging Big results in less pumping in the bass when loud percussive LF events such as kick drums or vocal "p" plosives are present in your program. On the high-band compressor, an Air switch places a 12kHz peaking filter into the sidechain, keeping high frequencies more open under heavy gain reduction.

A master gain control on the output section sets the final stereo output level. A balance control compensates for any level differences between the left/right channels. Meters are input/output-switchable, and a range Pad switch decreases the VU meter's sensitivity by 10 or 20 dB.

THREE-WAY CRUNCH

I used the S3 for live recording and simple mastering projects. On a broadband sound source like a drum kit, the S3 is a wonderful processor for room mics. I had a pair of AKG C 12s left and right, 10 feet in front of the drum kit at about five feet off the floor. The initial settings for all three bands were -10dB threshold, 0.2ms attack and 0.3 release; crossovers at 4kHz and 500Hz positions; and Big and Air on. Most of the gain reduction occurred in the mid- and low-band sections. Compressing and changing the level relationship between each of the three bands lets you "sculpt"—reshape the sonic characteristics of your drum room and

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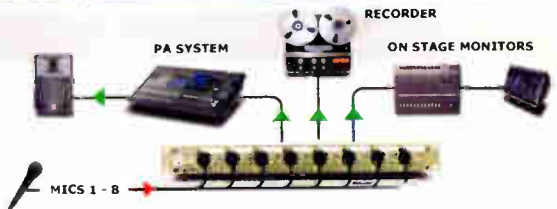
Steve Stevens
(Billy Idol, Atomic Playboys, soundtrack - "Top Gun")



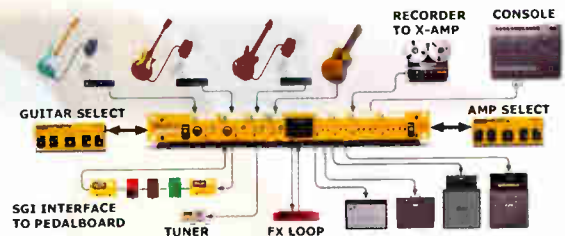
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FIELD TEST

the overall drum sound.

One track required a very midrange-y snare and kick drum sound similar to Camero or early Prince records, so I squashed the mids to about -8 dB of gain reduction and raised its level above the other bands. I bypassed the high-band section and only minimally compressed the low band. Anyway I set it, the S3's overall sound quality was exceptionally clear and clean.

On another session, the artist wanted a big rock drum sound where you could hear the compressor pump on cymbal crashes when doubled with kick drum hits. With Big switched off, I compressed to about -6 dB of gain reduction and elevated the low band, reduced the mid-band's level with 2 dB of gain reduction and compressed the high band starting at 5 kHz. This caused the bass drum to sound huge, like it sounded in the studio—just what the artist wanted.

In a mastering application, I used the S3 to repurpose old 2-track tape masters for song publishing demos. Here, the band-splitting ranges of 2 to 4 kHz for the high band and 250 to 500 Hz for the low band worked best. I changed the crossover points on a song-by-song basis—mostly depending on the production style, vocal level and instrumentation makeup. I increased loudness by compressing the missing high- and low-frequency ranges in these old tapes and reducing some of the midrange build-up. Using the S3 as a kind of "power EQ," the tapes sounded more vibrant, alive and louder.

By setting the high-band split to 10 kHz (or higher) and the threshold to -32 dB on the high-band compressor with the fastest attack and release times, I got a gentle de-essing action that didn't dull the desirable high frequencies. Leaving the Air switch off, I set the low-band split controls to 60 Hz, so it and the mid-band section acted as full-bandwidth compressors for the rest of the mix.

POWERFUL ANALOG PROCESSING

The S3 is easy and intuitive to use and lets you set up multiband compression without resorting to trial-and-error and constant tweaking. I've used other models and many software plug-in processors, but none were as simple to use and absolutely gorgeous-sounding as this unit.

Drawmer, dist. by TransAudio Group, 702/365-5155, www.transaudiogroup.com, www.drawmerusa.com. ■

Barry Rudolph is an L.A.-based recording engineer. Visit him online at www.barryrudolph.com.



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World Radio History

Josephson Engineering C700A Condenser Mic

Flexible Design Offers Two Front-Facing Capsules

The Josephson Engineering C700A is an ingenious condenser mic with two front-facing capsules. This design permits nearly total directional-pattern flexibility by carefully mixing the two capsule's output signals. The C700A is not an M-S or X/Y stereo microphone; rather, it has a 16mm-diameter omni capsule that responds to pressure, and is mounted above a pressure-gradient, 26mm figure-8 capsule. For recording events in anything from mono to stereo to three-dimensional surround, Josephson also offers the C700S, which adds a side-facing figure-8 capsule.

SOMETHING BORROWED, SOMETHING BIG

Both the C700A and -S borrow greatly from Josephson's Series Six microphones, with omni capsules that are similar to the KA11 model and Class-A, transformerless J-FET impedance-converter/head amps. The gold-layered, 5-micron-thick Mylar capsules are manufactured in-house. To preclude the need for an external shock-mount, the capsules are mounted in a brass yoke assembly and placed in rubber shock-mounts that are installed between the polyacetal (polyoxymethylene) resin upper and lower half-domes.

The C700A is a sizeable 4.2-pound unit, which accommodates the dual shock-mounted capsules and two sets of electronics, and allows adequate space around the capsules for proper acoustical mixing of sound sources. Its 328mm-long/63mm-diameter, nickel-plated machined brass body has large sound-entry holes backed with black oxide-plated, stainless-steel mesh. The latter provides durability and electrostatic shielding. The mic's increased mass/size means stability—less resonance when coupled between the U-shaped swing mount and the mic stand.

The C700A comes in a cushioned Pelican case with a 12-foot attached cable. A single 7-pin XLR male connector is used with an included "Y" adapter that fans out to two standard XLR connectors—one marked "W" and the other labeled "X." If the adapter is misplaced or lost, the mic is unusable.

OPTIONS GALORE

I first used the C700A to record a Martin D-28 acoustic guitar. The front side of the mic was five feet in front of and facing the sound hole. I used a GML Model 8200 pre-amp with 55 dB of gain, and fed two tracks in a Pro Tools HD rig running at 88.2 kHz. I used no EQ or compression. The C700A has no roll-off or attenuation switches; it can withstand greater than 142dB SPL before overload.

Both the omni capsule (the W channel) and figure-8 capsule (the X channel) output the same level, which makes it easy to record and mix the mics to two tracks. I used the studio's API console to mix Pro Tools mic track outputs. The omni sounded clear and openly ambient, yet remarkably "close" despite its distance from the source. The figure-8 sounded closer with more low frequencies and dryer with less of the surrounding room. If you mix the omni and figure-8 channels equally, then the in-phase components of both are added to produce a cardioid pattern.

Varying the ratio of the W channel to X channel changes the shape of the pattern. With no X channel added, the result is omni; hypercardioid when W is 10 dB lower than X; or wide-cardioid when the W channel exceeds the level of the X channel by a significant amount.

I recorded a Gibson Hummingbird acoustic with the C700A close up, aimed at the 12th fret and at a typical pop music distance of less than six inches. This time I recorded the blend of the two capsules using two Neve 1084 modules and the sidecar's mix bus. I got a fatter and bigger sound due to proximity of the figure-8 capsule and the signal chain. The sound was good for a song that required a featured, front-line acoustic guitar.

After recording vocals, I remixed the mic channels inside Pro Tools, using the



Trim plug-in to precisely change the gain or the phase of either the W or X channels. I had a male singer positioned three feet from the mic, and again, he sounded much closer than he physically was. This singer is notorious for "blowing up" boutique condenser mics, but not the C700A. Before adding the pad, the PreSonus M80 mic preamp distorted, but not the mic. I found the mic's sound to be clear, realistic, noise-free and quite neutral without a hyped high end or midrange.

Remixing each pair of tracks in a triple-tracked backing vocal passage greatly increased the depth of the finished background vocal stem. I also tried equalizing and compressing the X channel differently

from the W. Rolling off the X channel's low frequencies decreases the proximity effect, while boosting the W signal's high frequencies accentuates the room's ambience. I also found compressing the omni signal greatly increases ambience, letting the uncompressed figure-8 signal "speak" better.

I also used the C700A as an overall drum kit mic by placing it about five feet in front, at rack tom height. Panning the two capsule signals left and right produced a very wide mono room track, making it a solid, mono-compatible alternative to stereo room miking.

FLEXIBILITY DEFINED

The C700A is a unique tool that allows you to explore and experiment with mic patterns and the subsequent shift in tune, after the recording, during the mix. The C700A is great for accurately documenting any acoustical event. The C700A would make an impressive addition to any music recording studio or Foley pit, or for picking up location/ambient sound. Price: \$5,200.

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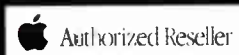


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SOUND AMAZING

Audiofile Engineering voXover Software

Large-Scale, Repetitive Voice-Over Recordings Made Easy

When it comes to recording mass amounts of voice-overs for a 30-hour videogame or doing more than 100,000 recordings of pronunciations for an online dictionary, automating the recording process is an absolute must. Audiofile Engineering's voXover Version 1, exclusively for Mac OS X, is designed to meet the needs of those tasked with managing large-scale voice-over recordings for videogame, Website and multimedia projects.

Think of voXover as a souped-up batch processor that adds recording capabilities. Its power lies in a streamlined process that ties all overdubs to a text script that you import, names the files for you and then exports the files based on rules that you set.

POWERED BY COCOA

voXover's interface is stellar. It was designed entirely in Apple's elegant Cocoa environment, leveraging Quartz' incredible interface capabilities and easy audio configuration via Core Audio. The entire interface has a very slick Mac OS X feel to it, as opposed to a proprietary window style, making voXover a pleasure to use.

voXover is designed to import scripts as text files. Using the Import Script command, you can import raw text in which you can assign lines to characters. You can also import text as a table with all of the characters and lines already associated. For table-style text, I would have preferred voXover to directly import spreadsheet files (i.e., Excel) as opposed to exporting the script in a spreadsheet program as tab-delimited text. This is a minor inconvenience, however, as the exporting process from a spreadsheet takes literally seconds to do. In addition, voXover can import raw text files such as a traditional script-style (centered) text or scripts formatted for VoicePro X.

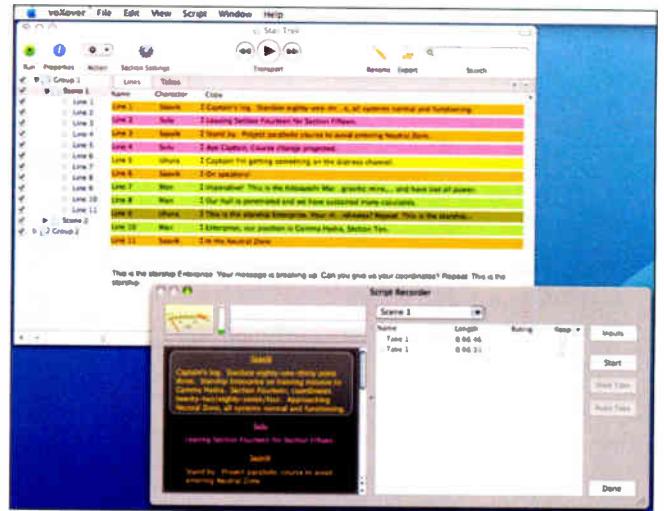
In general, when using batch-processing programs that handle large amounts of audio files, you must have a well-thought-out plan in place to save you from headaches down the road. This includes creating naming conventions, nominal level standards and project-specific considerations. voXover allows you to organize the batch-recording process into more man-

ageable parts by using hierarchical structures known as groups, sections and lines. For example, if you are working on a videogame, it might be useful to have the dialog broken down into groups and sections that correspond to levels in the game, in addition to categorizing player vs. non-player voices.

EASY FROM TAKE 1 TO 1,000

Once I imported the script, I was ready to record. Batch-recording in voXover equates to "running" the imported script. After clicking on Sessions in the top menu bar, I chose the Run command, which opens a window asking you where to save the session file. This is a single file that will store all of the lines you are recording as audio on your drive. Once the file is saved, the Script Recorder pops up. It has a peak meter and an analog-style VU meter. I then chose which section to record, and all of the lines associated with that section were then displayed in the Teleprompter.

The Teleprompter shows the lines that you are about to record, highlighting the active line while you're recording. One of voXover's coolest features is the ability to have the Teleprompter not only appear on a different screen (for dual-screen setups), but also on a completely different computer that has voXover installed. In my dialog recording session, I ran voXover on my main studio computer, and then through OS X's network protocol Bonjour, I had a separate laptop in the recording booth sign in to the active session on the network and—voilà—the laptop in the booth displayed and updated the current line being recorded with visual feedback as to when I was in Standby or Record mode.



voXover's Script Recorder window simplifies the dialog recording process with various metering displays and a dialog script area.

Using the Inspector (similar in appearance to Apple's suite of iWork apps), I specified whether I wanted to record lines manually by pressing the Next button or have voXover automatically go to the next line based on a user-defined threshold value for the input signal. Another cool feature is the ability to use multiple inputs for walla recordings and other voice-recording techniques involving multiple inputs.

IT'S A WRAP

voXover is certainly a niche product, but if you've ever had to record tons of voice-overs, it is a must. For instance, when recording games, once all of the lines have been recorded and the takes have been selected, you then export your files in a variety of formats such as Sound Designer II, WAV or AIFF at various sample rates and bit depths. You can have the files renamed automatically based on token values such as section, character, line name, take number, etc., in addition to having voXover number the lines for you. I highly recommend this software to anyone recording large runs of repetitive voice-overs. Price: \$375.

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Michel Henein is co-founder of Diesel Games in Phoenix.

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TORI AMOS TIMES FIVE

THE POLITICAL IS PERSONAL

By Paul Tingen

In 1908, Swiss psychiatrist Eugen Bleuler gave us the term schizophrenia. In 1973, The Who created *Quadrophenia*. And in 2007, Tori Amos gives us, well, let's call it "quintuplephenia." For her ninth studio album, *American Doll Posse*, released this past May, Amos has split herself into five different personalities: political Isabel, insecure Clyde, "warrior woman" Pip, passionate Santa and Tori, a caricature version of Amos herself. Most of these women are in their late 80s, and each of them sings several songs on the album, which holds a whopping 23, or 24 or 26 tracks, depending on the version, and, yes, it can get confusing.

As a marketing device, the five-way split-personality ploy has worked wonders: It has intrigued even passing fans, given journalists something to write about and has allowed Amos to run five additional blogs and MySpace pages. The pianist/singer

has been popping up in the media in recent months due to her political views. However, when speaking to Amos in the flesh, it quickly becomes obvious that, while the five-character approach unquestionably aims to expand the reach of *American Doll Posse*, the artist isn't simply looking for media coverage; she's trying to be as effective as possible in tackling what she sees as one of the greatest threats

to the future of the U.S. and

of humanity: George W. Bush and his colleagues. "I have an allergy to your policies," Amos sings on the album's opener, "Yo George," and sitting in her basement writing room at Martian Engineering, her studio in Cornwall, England, she ardently elaborates. "The main message of the album is: The political is personal," she explains, "as opposed to the feminist statement from years ago that the personal



Tori Amos at work on *American Doll Posse* in her Martian Engineering studio

is political. There's so much that's not expressed in a country that should be the land of the free. At the same time, there's so much concern, it's beyond concern; the U.S. has chosen to put people in authority that are taking us down a very dark road."

Amos has lived in the UK for more than a decade, but having been born and raised in the U.S., she still feels a deep connection to her native country. And so she has decided to tackle what she views as an authoritarian and war-mongering president, who she feels believes that the truth is something that can be made up. And so, when Amos laments "the madness of King George," she isn't just being hyperbolic.

SAVED BY A MARTIAN

More pertinent to *Mix* is the musical and production side of all this political brouhaha. Amos is sometimes viewed as a piano-playing waif who revels in singing gorgeous, string-soaked ballads. But her ballads almost always contain a steely, unsettling core, and over the years she has also recorded quite a lot of hard-hitting material, featuring angular prog-rock grooves and all manner of electronic experiments—distortion, sampling, loops, synthesizers and the like. *American Doll Posse* isn't short of gorgeous ballads, but what's new is the liberal use of heavily distorted guitars and the general feeling of a band rocking out together rather than just bass and drums backing Amos and her keyboards.

Amos was fully responsible for the change in direction—she not only wrote all of the songs, but she also produced the album. "I stepped into producing," she says. "for *Boys for Pele* [1996, her third album] because I was fighting for my artistic life. At-

—CONTINUED ON PAGE 126



NICK LOWE AND RICHARD THOMPSON

AGING GRACEFULLY

By Barbara Schultz

Indies are not just for kids. Once upon a time, it seemed that independent rock labels were mainly an outlet for upstart bands who were too new or too out-there to fit the major-label mold.

More and more, though, the indies are signing older, established artists; the best-known example was probably Johnny Cash, who enjoyed a great career resurgence on Rick Rubin's American Recording label. There are many more: Dwight Yoakam, Rickie Lee Jones, Solomon Burke, Porter Wagoner, Paul Weller, Alice Cooper—all stars who have happily downsized to indie-label homes. It's a great deal all around: For the labels, it means solid sales and the caché of name artists on their rosters. For the artists, the freedom to record on their own terms without the pressure to sound and sell like the majors. Two of these mature artists, Nick Lowe and Richard Thompson, have released new albums this summer, and you couldn't find better evidence of the way indies allow such musicians to age gracefully.

AT MY AGE

Lowe's release, *At My Age*, is his fourth full-length CD for U.S. indie Yeproc (he's on Proper Records in the UK), which boasts an eclectic roster of Americana and rock 'n' roll bands of all ages. Since signing with Yeproc in 1994, Lowe's music has followed a gradual



Nick Lowe's (left) *At My Age* and Richard Thompson's *Sweet Warrior* are available now.

path from his pub-rock/new wave days to his current signature blend of pop, jazz and country. The tracks don't rock like Lowe's '70s hits ("Cruel to be Kind," "Switchboard Susan"), but they do swing, and Lowe's writing is still smart, his voice still magical and his production sense still totally authentic.

For years, Lowe used a method of writing and pre-production where he rehearses in solitude before even letting his longtime band hear a tune. Then in the studio, he very quickly plays the song(s) for the musicians, and they begin to record. "One thing that informs this recording," says Lowe's longtime engineer/co-producer Neil Brockbank, "is that when he says to us, 'Get the boys together; I'm coming into the studio to record a song,' you know that he's got a fantastic thing on the go, and he sounds fantastic on take 1. There's no question as to whether he's figured out the second verse or the phrasing or how many bars for a solo. He's ready."

This method also works because the bandmembers are all so in-sync. "As far as the musicians are concerned, they're all vintage models," Brockbank quips. "That means they sound better than some of the more modern ones, but, of course, you have to be careful if you leave them turned on for too long! But they're so simpatico, these players. They absolutely understand what Nick's looking for, and in a sense they play what they perceive he would play if he was able, whether it's piano or the guitar or the drums. It's completely the opposite of hiring the kind of personality session musician. Geraint [Watkins'] piano chords, his choice

of in:vers:ons, for example, are absolutely designed to make it easier to sing the next line. It's an old form of accompaniment."

Production of *At My Age* began at RAK studios in London, a facility that Lowe and Brockbank have enjoyed in the past. "So many of the old studios have closed," Lowe says, "and the ones that are left are really high end, which I'm not keen on. RAK is great; they've got tons of well-maintained gear."

But even an excellent mid-level facility like RAK can eat up an indie budget fairly quickly, and given the shortage of suitable studios, Brockbank did something part-way through this project that he'd never imagined he'd attempt: He opened his own studio. The new facility is built into a former dairy, and Brockbank calls it Gold Top, after the old-fashioned cream-on-top milk.

"A fantastic location came up, right on the strip in Camden in London, just near the Roundhouse Theatre," Brockbank says. "It's right in the hub of London. At first, I thought this is going to be brilliant because after we've done our tracking at RAK, we can come back here and do our hand claps and our backing vocals—the minimal overdubbing that's required on Nick's records. However, once we got going, we found that we liked this place for cutting, too."

Gold Top is a single-room, 500-square-foot facility, and Brockbank says he doesn't miss having a separate control room. "I'll never go back to that," he says. "This is so fantastic in terms of communication. In my role, because I'm doing the engineering and being a co-

—CONTINUED ON PAGE 130

TEARS FOR FEARS' "EVERYBODY WANTS TO RULE THE WORLD"

By Heather Johnson

Amazing things happen when we stop planning, analyzing and second-guessing ourselves long enough to allow the creative process to happen on its own accord. Roland Orzabal and Curt Smith, the duo behind the synth-pop group Tears for Fears, had spent many months working and re-working *Songs From the Big Chair*, the follow-up to their 1983 Phonogram debut, *The Hurting*. Each song entailed endless analysis and adjustment in every stage of the recording to make sure Orzabal's weighty lyrics came through with ample power and their music conveyed the sophisticated yet accessible sound they wanted. But when they got to "Everybody Wants to Rule the World," the last track recorded, they had grown tired of fiddling and the whole thing tumbled out in less than two weeks. Why? They followed their first instincts, and because they wrote the song so quickly (and just possibly because they were burned out and ready to go home), they didn't take the song too seriously and figured it was an upbeat ditty to balance out more intense fares such as "Shout" and "Broken."

Ironically, their throwaway track, this month's Classic Track, became the album's centerpiece and debut single, topping the *Billboard* Hot 100 and Hot Dance charts, and leading the band to commercial success that far exceeded their expectations. With this single—and the album's other chart-toppers, "Shout" and "Head Over Heels"—the band achieved their goal of winning over the U.S. market and then some.

Tears for Fears were already well-known in the UK thanks to *The Hurting*, which had produced three Top Five U.S. singles. They felt reasonably content with their success on the other side of the pond, but their producer, Chris Hughes, knew that Orzabal's songwriting, combined with Smith's keen melodic sense, could win over audiences worldwide. "The tendency in Britain at the time was to make clever, introverted synth-pop records, and we had done that with *The Hurting*," says Hughes. "I thought Roland's songwriting was universal and that we could have a more American, if you will, type of record. The overall impression when we started *Songs From the Big Chair* was that it was a *big* record, so it felt like everything was already moving in that direction."

With *The Hurting*, the band incorporated the latest of 1980s technology—MIDI-controlled keyboards, synthesizers and drum machines—into an all-electronic concept album dealing with mental anguish and emotional crises. With *Songs From the Big Chair*, they continued to take an inner-directed approach but with a lighter touch, both conceptually and musically. "I felt that we should keep the synths that we loved, but re-introduce guitars," says Hughes. "Roland was reluctant to at first, but once we recorded 'Mother's Talk,' we had hit on the style of what the album could be."

Working in keyboardist Ian Stanley's home studio, the



band recorded eight songs, which initially seemed like enough for one album. But Hughes thought the record needed more work. "Roland had convinced the label that the album could work on 'Head Over Heels' and 'The Working Hour,'" he says. Granted, "Head Over Heels" did become their third U.S. Number One, but a couple more strong songs sure wouldn't hurt.

Not long after that decision, Orzabal played Hughes a chant he had written called "Shout." They stopped everything else to focus solely on that number, which would become their second Number One and one of the most recognizable songs of the decade. They spent many, many months on that powerful anthem alone, making sure that each layer worked perfectly with the others. Near the end of its evolution, Orzabal walked into the studio and played two simple, chimey chords on his acoustic guitar. He didn't give them much thought, yet he couldn't stop playing them. "It's nothing," he told Hughes. "It sounds a bit like [the Simple Minds song] 'On the Waterfront.'" Those two chords became the foundation for "Everybody Wants to Rule the World."

"I had a little 8-bit computerized MIDI sequencer called a UMI [Universal Musical Interface], and I programmed those two chords and a bass line, and had that running on and off for days in the studio," says Hughes. "Roland was really not interested. I said, 'You *have* to go away and write this song! I know it's only two chords, but it's really, really good.' Some weeks later, he came in with basically the chorus line. From the day he came in with that chorus line, myself, Ian Stanley and Roland sat down and finished the whole thing in about a week. If you put up the 2-inch masters of that song now, it almost mixes itself. It's very straightforward."

Typical of synth-driven 1980s pop, the entire song was programmed, and the only organic elements were a few guitar parts and Smith and Orzabal's vocals. "This was the flavor of the time," explains David Bascombe, who recorded and mixed the album. "It was all very controlled." Their layered style of recording also made it easier to work from Stanley's home studio, which the band had recently upgraded using advance money from the second album. Stanley's newly ex-

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panded home studio included a 32-channel Soundcraft console, a 24-track analog tape machine and room for the band's keyboard and synthesizer collection, which included such classic designs as Sequential Circuits Prophet 5, Fairlight CMI, Roland Jupiter 8, Yamaha DX7 synthesizer and PPG Wave. They also had a LinnDrum LM-2, another recent acquisition.

"It was a really exciting time," recalls Bascombe, who was just starting his career at the time. *Songs From the Big Chair* was his first major album project—a testament to his inherent talent. "I loved all the new technology that was coming out, and Tears for Fears was pretty much at the forefront of it all. We also had some old analog mono synths—Ian had an old Roland modulator system that we used on a couple of things—but the [synths] were the mainstays. The LinnDrum did almost everything else. We just chose whatever device would deliver the sound we were after."

Hughes programmed most of the drums on "Everybody Wants to Rule the World." They borrowed the snare drum sound from "Shout" and pitched it up. The hi-hat and shakers came from the LinnDrum. The kick drum sound came from the Fairlight CMI. Smith laid down a new bass line with the

PPG Wave, and Orzabal and local session musician Neil Taylor laid down the electric and acoustic guitar parts. The synth pattern came from the DX7. Bascombe recorded Smith and Orzabal's vocals with a then-new Neumann TLM 170 microphone at Union Studios in Munich, where they also mixed. "We wanted to mix on an SSL, but not in England," Hughes recalls. "So we looked through the SSL guide and found one in Munich!" The locale also allowed for a bit of skiing for some of the team, as Bascombe recalls.

Mixing *Songs From the Big Chair* took almost as long as the recording process and was just as tedious. Bascombe mixed many of the songs more than once. "Shout" alone took four days. Limited technology, combined with the band's perfectionist streak, made for many a long day. "It was a very careful, considered process," recalls Bascombe. "Everybody Wants to Rule the World," however, wasn't taken as seriously. "We only mixed this track once," he recalls. "It came together easily. With the other songs, there was a lot of second-guessing, making sure every sound was really pushing the band. But this was more straightforward."

"It's probably the most straightforward recording on the record," adds Hughes. "Other

tracks were recorded to two 24-tracks, then we would do edits on tape, and any piece of technology that could have gone wrong or held us up probably did. But 'Everybody Wants to Rule the World' was so simple and went down so quickly, it was effortless, really. In fact, as a piece of recording history, it's bland as hell."

The song's simplicity comes through when one hears the pulsing shuffle-beat, bright melody and singable lyrics. Even though the message is still quite serious—about people craving power and the misery of warfare—the song serves as a refreshing break for those listening to the album straight through, as well as for the team that recorded it. "When you've spent so long trying to perfect the other bits and pieces of the record and it has taken such a long time, it's a breath of fresh air when something comes together in a very innocent moment," says Hughes. "It was up on its legs too quick to over-fuss it."

The song recorded as an afterthought became the album's lead single, shot to Number One for several weeks and helped the album reach quadruple-Platinum status less than a year after its February 1985 release. The album broke Bascombe's career; he went on to work with such artists as Depeche Mode,

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ABC, Peter Gabriel, Erasure and, more recently, James, Natalie Imbruglia and Linkin Park, among others. He also rejoined Tears for Fears to engineer and co-produce *Seeds of Love* back in 1989.

Songs From the Big Chair also remains a key album for Hughes, who'd already had success with Adam & The Ants before meeting Orzabal and Smith in the early '80s. "When I'm working with people now, they refer to either the math, science and synths of Tears for Fears or the rawness and mayhem of Adam & The Ants," he says. Hughes went on to work with Howard Jones, Lloyd Cole and Robert Plant, among others. He also issued a solo CD and recently finished recording and producing a new jazz project called The Quartet, featuring former Wang Chung vocalist/guitarist Jack Hues, to be released on Hughes' own Helium Records. ■

TORI AMOS

FROM PAGE 120

lantic wanted another record like *Under the Pink* [1994, her second album]. But I knew that if I delivered that, it would be all over

for me. You cannot repeat yourself exactly the same way. People move on."

Maintaining control of her musical output has always been essential to Amos, particularly because of a long battle she fought with Atlantic, which culminated in the company releasing her in 2002, when the artist moved over to Sony/Epic. Another manifestation of her quest for autonomy is her recording studio in Cornwall, Martian Engineering, where she has recorded all of her music since *From the Choirgirl Hotel* [1998], the follow-up to *Boys for Pele*.

She set up the studio on the advice of Peter Gabriel. "I had I not listened to him," she recalls, "I don't think I would have survived the war with Atlantic Records. But we were here in Martian Engineering, and in control and in command of the music, and the record company only had access to the master tapes that I gave them. I've heard stories of artists standing outside and banging on doors, screaming, 'Give me my f***ing masters!'"

Amos built Martian Engineering in 1997 with the help of Mark Hawley and Marcel van Limbeek, her live and studio sound engineers since *Boys for Pele*; the former is also her husband. The gear at Martian is state-of-the-art, with a Neve VR Legend VSP 7.1 68-channel



Amos' piano is miked with two Neumann U87s.

desk with Flying Fader automation, complemented by a fully loaded Pro Tools HD3 Accel system, using three Apogee AD16X converters for inputs and three Apogee DA16X converters for outputs. Hawley and van Limbeek clearly mean business when it comes to hi-fi sound. This is also borne out by the impressive collection of microphones, preamps and outboard, featuring models from Neumann, AKG, Focusrite, GML, Lexicon, Tube-Tech and so on. All five rooms—four live spaces and a control room—were acoustically designed by van Limbeek, with diffusers creating uniform acoustics throughout.

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"Studio technology has been much harder to come to terms with for me than performance technology," Amos admits. "We're pretty geared up in Martian, and I think I have made friends with what's there now. I don't regard studio equipment as the destroyer of the organic musician anymore. I had to sit back to be able to see the subtleties and endless possibilities of studio technology. I've lived with all the boxes and knobs. I understand what Pro Tools does. I believe in using all these things as instruments, and have learned how to use them musically instead of letting them homogenize my work. And so it's a cop out not to embrace it. Now what's happening for me is that I treat these elements as part of the arrangement."

TRACKING THE ARTIST

The process of recording an album apparently begins with Amos and her preferred writing aids: books, a Bösendorfer grand piano, a compact cassette recorder and a boom box. "For this album, she spent much more time on her own, thrashing out the songs and the structures, than for other albums," recalls Hawley. "In the past, she'd come to Marcel and me when the songs were half-written, and we'd record some really great piano/vocal demos, but this time they were almost finished by the time Matt [Chamberlain, drummer] and Jon [Evans, bassist] came in.

"They're great players, and in the three weeks that they were here, they and Tori laid down two tracks a day," Hawley continues. "Tori would play them the song in the morning, and Matt would do a loop rather than play to a click. He builds the loops himself in Ableton Live. I will put it into Pro Tools and they play to that. Sometimes a loop survives and actually makes it onto the track, like it did on 'Digital Ghost.'

"They always track together, all three of them. Jon will sit here in the control room, Tori in one live room, and Matt in another. They may do eight or nine takes, and Jon or Matt may add a few fixes to improve their parts. But usually what you hear is what they've played. Tori is at her best when she plays piano and sings at the same time, and in a song like 'Beauty of Speed,' she played Bösendorfer and upright piano at the same time. Although we have a screen behind her vocal microphone to separate it from the piano, you can definitely hear the cross-talk between piano and vocal. So we can't really edit Tori's vocals like you can with most people. The only thing that we can do is splice different takes together."

The guitars, of which there are many on *American Doll Posse*, are played by the mys-



Amos' engineers are her husband, Mark Hawley (left), and Marcel van Limbeek.

terious Mac Aladdin. He also appeared on Amos' previous two studio albums, but has never been seen on the live stage or spotted on albums by any other artist. It can be revealed here that the name is an alias—but avid Amos fans already worked that out a long time ago. In addition, the album features a string quartet, a tuba and a euphonium, all arranged by long-standing Amos collaborator John Philip Shenale. Guitars, strings and brass were overdubbed, also at Martian.

Van Limbeek looks after recording Amos, giving the Hawley/Amos man-and-wife tandem a bit of space. Van Limbeek notes, "For the new record, Tori's piano is recorded with two Neumann U87 mics, placed under the lid, in an M-S pattern, one set to omni or cardioid and the other to figure-8, going through a GML 8304 preamp. Before that, I'd use two U87 microphones with cardioid patterns, placed phase-coherent with a bit of space between them. In the past, I always used the Focusrite RED 1. You have to change your setup at times; you can't have every record sound the same.

"Just like with *The Beekeeper*," continues van Limbeek, "we began recording Tori's vocals on the new album with the Blue Bottle, but one-third into the recording we obtained the Korby KAT-5, which is a fantastic microphone. You can change the capsules to get the characteristics of several classic microphones. It sounds amazing and the noise floor is so much better than with many of the older microphones. We used it for the remainder of the sessions, varying the microphone capsule and pre-amp per song, and sometimes inside of a song, but mostly we used the U47 capsule. She sometimes has very elaborate vocal arrangements, so it helps to have different vocal sounds inside of a song. A typical mix chain on the vocals may be Neve 1084 first, then 1A-2A or 1176, depending on what sound we want, then GML EQ."

"The electric guitars were all recorded with a dynamic microphone," says Hawley. "Marcel had met Bob Heil, who is a legend in the P.A. system world, and he made these new Heil Sound PR40 microphones, and they are absolutely stunning. They have a much better high end than most conventional dynamic microphones, and at the same time they have all the good qualities of dynamic microphones, in that they don't distort. We put the PR40 on the guitar cabinets and ran it through a Neve 1084 mic pre, and sometimes through a Chandler EMI copy preamp and then straight into Pro Tools.

"For the acoustic guitar, mandolin and ukulele, I used the B&K 4003 in omni mode, using the B&K mic pre straight into Pro Tools. I've always used cardioid mics and was never really happy with the sound I was getting. So for this album, I tried an omnidirectional mic, placed quite close, and I found that it works well because you don't get that horrible proximity effect. But, of course, it does depend on the room being great.

"We always record Jon's bass direct," Hawley continues, "but we also miked some speakers up, using Neumann KM140 cardioids. He has his own compressor, and we didn't add any. The distortion you hear on the bass on 'Body and Soul' comes from a distortion pedal that he uses. We had 13 microphones on Matt's drums, including a pair of B&K 4003 mics behind his head and an [AKG] C-12 above the snare and one above the floor tom."

Despite using Pro Tools and their love of digital in general, Hawley and van Limbeek still seem to prefer to work out of the box as much as possible. "We tend to use Pro Tools purely for editing and as a tape machine," explains Hawley. "But we do everything else outside of Pro Tools, and for the mix we go through the Neve desk and use almost only outboard gear.

"We used a couple of plug-ins for *Ameri-*

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World Radio History

can Doll Posse. We applied the Massenburg Design Works digital EQ fairly extensively. It's brilliant—precise and smooth and extremely neutral; it doesn't change the color of whatever you are treating. We also used all our outboard EQs. The Massenburg plug-in was mainly used to filter low end. Another plug-in that we used was Sound Toys, just for some crazy effects, and that's it."

As for the mixes, "They were fairly straightforward," states Hawley, "just EQ and a little bit of Lexicon 480 or 960 plate reverb and sometimes something like a chorus to fatten up the vocals a little bit. The presence of the distorted electric guitars required a little bit of additional EQ because they're in the same range as Tori's vocals, and we still wanted her vocals to pop out and be well on top."

Mixdown of *American Doll Posse* was to Martian Engineering's SADiE Series 5 DSD format. Van Limbeek, Hawley and Amos' regular mastering engineer, the legendary Jon Astley (The Who, Led Zeppelin, George Harrison), all sang the praises of the SADiE system. "Martian has an early, stereo-only Series 5," explains Astley, "which was given to me by SADiE for try-out. For mastering we went from the SADiE via DCS converters to analog, then through a Manley Active Passive and a Prism MEA-2 stereo EQ, and then back through a DCS converter into my SADiE Series 5 at 24/96, after which I treated the sound with a Daniel Weiss EQ1-LP and DS1 compressor/limiter/de-esser, and then back through a DCS converter into my SADiE Series 5 DSD at 24/96, after which I treated the sound with the TC Electronic 6000 and the MD4 to add a dB or two. We went from 96 to 44.1 in the SADiE, which works really well. Finally, we did 24-bit to 16-bit dithering using the Daniel Weiss POW-R."

After the mastering of *American Doll Posse* early this year, Martian Engineering for the first time opened its doors to outside customers. Now a residential commercial facility when Amos is not recording there, it boasts four bedrooms, a Jacuzzi, a dining room, a gym and splendid views of the surrounding Cornish countryside.

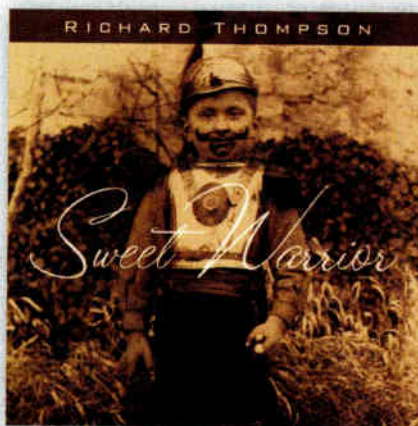
Amos is philosophical about the commercial potential of her new album, knowing that music and politics are often uneasy partners, especially in the U.S. And unlike an album like Neil Young's controversial *Living With War*, which struck a chord with a few baby-boomers but not many others, *American Doll Posse* is aimed at a much different audience. "I'm after [Young's audience's] teenage daughters. This is about rousing 18-year-olds to wake up and make choices." ■

NICK LOWE/RICHARD THOMPSON

FROM PAGE 121

producer, it means I can just wander over and talk to people. And we've got everything we need right here. Bobby Trehern, Nick's drummer, is a partner in the studio, so his drums are here. We've got a grand piano, Hammond organ. So when we get the call from Nick, we don't have to hire anything."

Brockbank records to RADAR, as he has since making Lowe's 2001 release. *The Convincer*. "I like the sound very much," he says of the RADAR. "The other thing I like is that I can operate it without looking at the screen.



That's not a technophobe thing; I find that with a DAW, they tend to dominate production flow and they tend to determine what you do and when you do it."

Brockbank's processing tools, however, are analog: EMT 140 plate reverb, Summit, dbx, UREI compression. He monitors on Tannoy Little Reds. "Digital recording and analog mixing, with a classic analog outboard set," he explains. "I bought most of these things cheaply a long time ago, but I didn't yet have a studio, so I lent things to people. I also had Audio Kinetics acoustic screens and lent them to somebody. I wasn't sure I'd ever need them, but now they come in very handy!"

Brockbank says Lowe and company usually record a song a day, and, "You're in fantastic shape at the end of that first day. You've got the real lead vocal and the rhythm track. On some songs, that'll be enough; there won't be anything left to do. On other ones, there will be some backing vocals, extra keyboards, depending on whether Geraint does the piano or organ on the track. He usually adds the opposite during overdubs. By the time it gets to 5 o'clock, you've got a record. You play the song maybe 12 times in the course of an afternoon, and you've either got a record or you haven't. If you haven't, it's because there was something fundamentally

wrong with our approach to the song and we need to come back to it later and have another go. We're recording live. There's no point in just keeping the bass drum."

As Lowe likes to track live in one room, Brockbank's got to be careful in his mic choices. For example: "You can't use an RCA 77 [for Lowe's vocal] because the pickup's too wide," he says. "We tend to use a Neumann KMS 105, which is their sort of P.A. mic; it's a handheld condenser, and we find that gives good balance of rejection and poshness.

"The mixing process comes together over the course of the production," Brockbank continues. "There's no point at which we sit down and say, 'Now we're mixing.' Sometimes everybody goes home at 6 o'clock and I spend a couple of hours pushing faders around until I've got something that I can play them the day after. Those often end up being the mixes on the record. Those are the ones Nick likes, the ones that are slightly unfussy, have the spirit of the song, but haven't got tons of fairy dust on them."

Typically unfussy, Lowe observes, "When people record live now, they make a big song and dance about it, but it does make you play in a different way, so you almost stand a chance of getting something unusual. It has a real handmade quality."

SWEET WARRIOR

Thompson's first album for Shout Factory, *Sweet Warrior*, finds the singer/songwriter/guitarist in full-band mode after making the solo acoustic *Front Parlour Ballads* in his home studio. Thompson has recorded for a rash of various majors and indies over the years, but one element to his career has remained the same for ages: Simon Tassano has been Thompson's live engineer and tour manager since 1982.

"We're still working together and having a good time," Tassano says. "The last record we did, I co-produced and mixed that here in my own little room in Austin, Rumiville Music. This new record I co-produced with Richard at House of Blues [Encino, Calif.] and mixed it at Rumiville, as well."

For Thompson's fans, *Sweet Warrior* is simply another fantastic collection of soaring, well-crafted originals from an artist whose soulful singing and virtuosic playing have never quite received their due. For Tassano, this album is his first full-scale "producer" job, but having a new title posed few challenges for the engineer who is so perfectly in tune with Thompson's sound. "I think Richard asked me to produce because we have a great relationship, and we know what each other means without words. And the fact of my having a room here where I

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can mix takes the pressure off as far as the money. There is always cross-pollination of music ideas and sound ideas, but basically we worked in the studio the same way we work live: Richard takes care of the music, and I take care of everything else."

Tassano worked with the studio's house engineer, Doug Tyo, recording to Pro Tools and laying down basic tracks and a scratch vocal live. "Richard records a live vocal with every track, with a Shure SM7. But we replace most of those with overdubbed vocals using a C-12, which has a natural sound for his voice. His vocal has a very strong midrange and a lot of sibilance, and the C-12 doesn't over-accentuate either of those areas."

Thompson's electric guitar was captured using a setup that combined Tassano and Tyo's ideas: an SM57 and a Royer ribbon mic on the amp, and a U87 or U67 six or seven feet away to capture the room. "I was the one to push for the room mic," says Tassano. "The room really helped, and no effects were required at all. If you have a nice-sounding room—and this one is—let's capture it, because that's what we're paying for!"

On acoustic guitars, they used a coincident pair of Neumann KM84s. "Simon wanted to try that, and it worked really well," Tyo says. "I hadn't used those mics that way before, but it was cool."

The album was recorded in two batches: half with electric bass and half with upright acoustic played by Danny Thompson (no relation to Richard Thompson). During that second half, Danny Thompson played in the vocal booth and Richard Thompson had to be moved into a corner of the main room. "We had to put him in there with the drummer," Tyo says. "We did get some bleed, but Richard's so good at playing we didn't have to overdub any of his parts."

Tassano is a MOTU Digital Performer user so Tyo used Digi Translator to convert the files for the mix in Austin. "My chain for Richard's vocal in the mix was a [UA] plug-in Fairchild compressor into a [UA plug-in] Neve 1082. I am amazed by how it sounded like the actual model. I was very impressed by the way it interacted with the voices."

The first song to be released from *Sweet Warrior* is an edgy political rock song called "Dad's Gonna Kill Me"; "Dad" equals Baghdad, and that about says it all. After 40-plus years in the business, Thompson may not be the kind of artist who's going to get snapped up by Universal, but he still makes beautiful albums, and he's still got loads to say.

"He keeps getting better," Tassano says. "I don't know how he does it or where it comes from, but he does. I'm still a huge fan, and I look forward to every gig." ■

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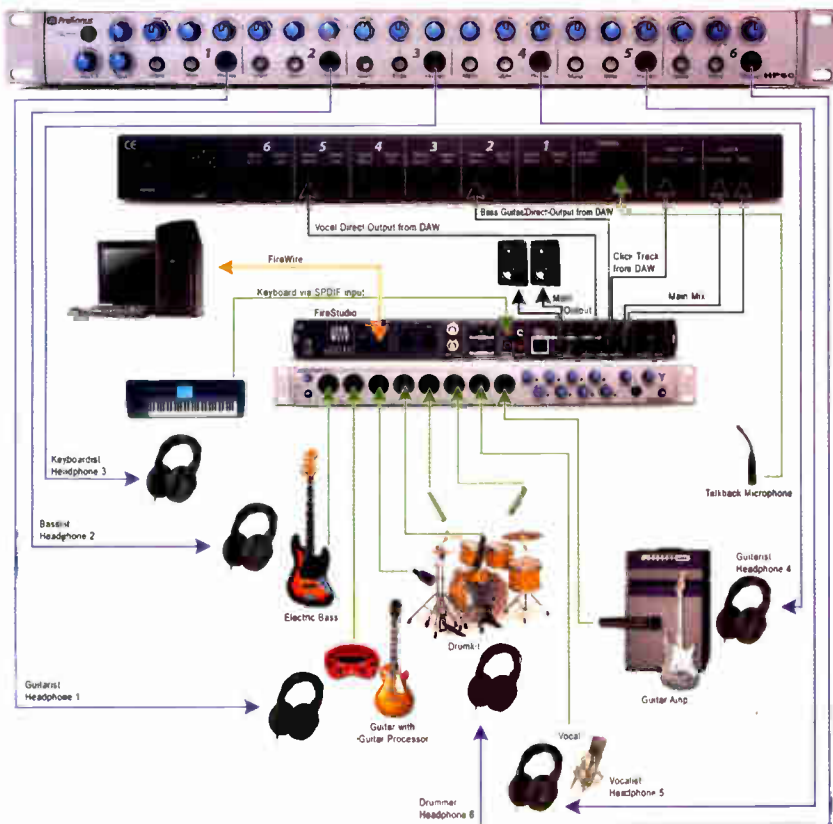
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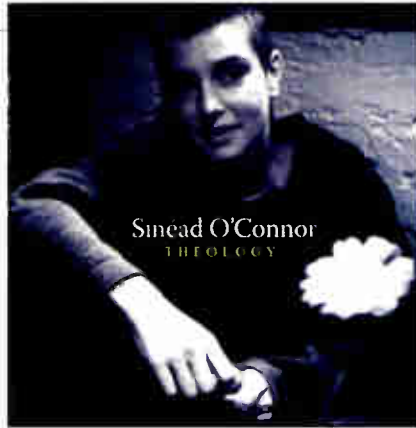
Sinead O'Connor

Theology

(Koch Entertainment)

When Sinead O'Connor set off to make *Theology*, she began with the notion of recording acoustic-only tracks—just her and a guitar, the way she performs some of her live encores. But just as she and producer Steve Cooney were capturing intimate versions of these beautiful new songs in Windmill Lane, O'Connor was also working with producer Ron Tom with the idea of recording a future project in the way most of her albums have been made: combining hip hop beats with orchestral strings and electric guitars as a backdrop for the singer's magnificent, reverb-magnified voice. O'Connor found herself totally attached to both versions of this album, and so she's releasing both. It's easy to see why; the acoustic disc 1 (dubbed the Dublin Sessions) and electric disc 2 (London Sessions) are equally intoxicating. The acoustic disc is simple and sweet, with delicate guitar work and pure focus on song and voice. Disc 2 is by turns bright and moody, and includes the first UK single (a song that's not on Disc 1), O'Connor's version of the Rice/Webber opus from *Jesus Christ Superstar*, "I Don't Know How to Love Him." More exemplary of the compositions on this double-CD is the U.S. single, "Something Beautiful," which O'Connor says she wrote as sort of a prayer for the inspiration to create something beautiful in a dangerous world. The overall feeling on *Theology* is somehow simultaneously personal and Biblical. Most important, acoustic or electric, O'Connor's sound is unmistakable, and always remarkable.

Producers: Sinead O'Connor, Steve Cooney, Ron Tom. Engineers: Graham Bolger, Ron Tom, George Renwick. Studios: Windmill Lane (Dublin), Mayfair Recording Studios (London). Mastering: Disc 1—Bob Katz/Digital Domain (Altamonte Springs, FL); Disc 2—Chaz Harper/Battery Studios (NYC). —Barbara Schultz



King Wilkie

Low Country Suite

(Zoe Records)

King Wilkie play a moody brand of string band music that occasionally brushes up against a traditional bluegrass approach, but often veers in other directions simultaneously, adding such instrumental touches as ukulele, pedal steel guitar, accordion, percussion, even kazoo. Mandolinist Reid Burgess and guitarist John McDonald have a wonderful vocal blend on this collection, which is dominated by country/folk ballads. "Crazy Daisy" shows their debt to *Sweetheart of the Rodeo*-era Byrds, but mostly they have an original sound that mixes melancholy with melody quite beautifully. Songs such as "Stone & Steel" and "Captivator" are quietly powerful and emotional, whereas the excellent "Wrecking Ball" jumps from the disc. And though there's no flashy playing at all, the instrumental work throughout feels just right.

Produced, engineered and mixed by Jim Scott. Recording and additional engineering: Steven Rhodes. Studio: Plyrz Studio (L.A.). Mastering: Joe Gastwirt/Gastwirt Mastering (Oak Park, CA) —Blair Jackson



Nicole Atkins

Neptune City

(Columbia)

A songwriter's muse can come from anywhere: Nicole Atkins is a self-proclaimed metal-head, yet what comes out of her mouth is smooth, luscious and elegant. Her debut, named for her New Jersey seaside hometown, is dreamy, with hints of Loretta Lynn coming through with a hint of pop sensibilities. Backed by her band, The Sea, Atkins eases into the album with soft lyrics, minimal drumming and an easy swing. As you progress through this effort, you suddenly realize that you're hearing more politically oriented lyrics while holding true to a "love lost" foundation. The moods flow easily from soft ballads to more folk/pop stylings to a smoke-filled Paris cafe without too much drama. Atkins is someone to keep your eye on.

Producer: Tore Johansson. Engineer: Acke. Mixing: Johansson. Studios: Varispeed Studios (Klaggerup, Sweden), The Bubble. Mastering: Morten Blue at Audioplanet (Copenhagen).

—Sarah Benzuly



The Country Gentlemen

Going Back to the Blue Ridge Mountains

(Smithsonian Folkways)

Like Flatt & Scruggs, bluegrass artists The Country Gentlemen gained most of their fame from the "Folk Revival" of the '50s and '60s. Their traditional, virtuosic sound may have been fairly commonplace in their home state of Virginia, but Northern music lovers couldn't get enough. This CD was originally released in 1973 and comprises live performances that the producers think took place throughout the '60s. Smithsonian Folkways has reissued *Going Back* in celebration of the Gentlemen's golden anniversary, and it includes a 28-page booklet detailing the history of the group, and offering a critical view of bluegrass of that era. The album may not be spotlessly clean, but passionate playing, high lonesome singing, and surprisingly good separation of instruments make the release just as enjoyable as it is historical!

Sound supervision and mastering: Pete Reiniger. —Barbara Schultz



Avishai Cohen

After the Big Rain

(Anzic Records)

I first encountered New York trumpeter Avishai Cohen's atmospheric work on a pair of luminous albums by the French singer Keren Ann. The quieter parts of this album have some of that reflective and introspective quality, but much of what's here has a distinctly African feel to it, thanks in part to the presence of Benin-born guitarist and singer Lionel Loueke (who recently signed his own deal with Blue Note). The title song and "Miriyama" are in the Fon language of West Africa, and the disc's longest track is called "African Daisy" (though it's less overtly African-sounding). Not surprisingly, Cohen occasionally echoes Miles Davis in his playing, but he also favors electronic treatments on his horn, which take it to another place altogether. File this intriguing outing under "World Jazz."

Producer: Avishai Cohen. Engineer: Frederik Rubens. Studio: Puremix (NYC). Mastering: Allan Tucker/Foothill Digital (NYC) —Blair Jackson



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L.A. GRAPEVINE

by Bud Scoppa

As a one-time major-label A&R guy and full-time music-magazine-editor-turned-independent-contractor, I'm acutely aware of the pressures that come with working in and around the music business in this challenging decade. This month, I'll take a look at a couple of talented and resourceful individuals who have battered down the hatches and sailed through rough seas by making use of every bit of skill, knowledge, experience and resiliency. Their stories may not constitute the feel-good hit of the summer,

ists, including Steve Earle, Graham Parker and Dave Alvin. "In the last year," says Sluiter, "my career has taken an interesting trajectory. I had co-produced the last OK Go record, *Oh No!* When the treadmill video blew up on YouTube, I started getting some interest from a few producer/managers. When nothing materialized, I realized that I needed to get 'circulating,' and I decided I would assist if the situation was right.

"I had met Jim Scott [the subject of my July column, in a cosmic coincidence] in 2004 when I was recording Flogging Molly in Studio 2 at Cello," he says. "I'd always been a big fan of his work, and Jim mixed a few projects I had tracked. I made repeated offers to assist for him, which he refused, saying, 'I don't like hiring people into a position beneath their skill level.' Finally, I just called him, and said, 'Look, I just want to work. The reality is that I need to assist if I want to pay my rent, so why not assist for you?' Eventually, a project came up that one of his regular guys wasn't available for, so he took me up on my offer."

Since then, Sluiter has run Pro Tools on mixes for Travis Tritt and an end-to-end project for Kathleen Edwards. "I really like working with Jim," he says. "His client skills are amazing and, in addition to being one of the most musical mixers I've worked with, he's also the fastest. Jim is the man in charge, no doubt, but as the PT operator, you set the pace of the session and Jim likes to work fast. As I said, it makes it much more interesting than traditional assisting."

Sluiter's most significant non-studio gig has involved recording and mixing a June 14 concert by The Format at the Mayan Theatre (Denver) for use in a concert DVD directed by Sam Erikson. "As the engineer/mixer of their most recent album, *Dog Problems*, this project gave me the chance to continue my working relationship with the band," he notes.

Sluiter recorded the two-and-a-half-hour concert, including strings and horns,

—CONTINUED ON PAGE 140

NASHVILLE SKYLINE

by Rick Clark

Making studio news headlines along Music Row was the closing of Masterfonics, one of the area's most distinguished studios. The story of its demise is a sadly familiar one, and when the topic was brought up to me in conversations, there seemed to be an abundance of dour assessments about the state of the local industry. I decided to call a few people integral to the Nashville recording scene—owners and a couple involved with servicing the studio community—to get their take of what's happening.

Nancy Quigley, owner of NTS Promedia since 1994, has experienced the studio community's dramatic ups and downs first-hand. "It's been a transitional time, to say the least," says Quigley. "We saw recording projects go from \$2,000-plus on analog tape to a \$200 hard drive. Pro Tools taking over Nashville affected NTS sales and Nashville's studios in a big way. In addition, studios and publishing were shutting down or consolidating right and left. It was a tough five years for everyone. Just when it seemed the downward trend was never going to end, the dust seemed to settle and the orders started coming in. The difference was the customer was beginning to change. The majors are still present, but there is a much stronger presence from home studios, independent labels and custom projects. Analog has made a recent resurgence, with producers missing the warmth in their recording projects. Although it seems Quantegy has stepped out of the market, we still have analog available to us through RMGI [formerly BASF].

"The famous, state-of-the-art studios such as Blackbird will have continued success because there will always be a need for the Rolls Royce of any business, just as the world needs five-star restaurants," Quigley continues. "But the normal public can't afford to eat there seven nights a week. The mid-level and small studio will have to be creative and will see the face of their clientele change. With fewer publishing companies, labels and artists on the labels, the majority of business these studios are accustomed to



With success from OK Go and others under his belt, Ken Sluiter finds that he needs to continue "circulating."

but as Spoon put it so compellingly, that's the way we get by.

"As much as I enjoy a good old-fashioned, eight-week camp-out in a Neve room, with runners, a food budget and all the rest, those gigs aren't as plentiful as they once were," says Ken Sluiter, a Chicago transplant who has worked with such acts as OK Go, Lucinda Williams, Flogging Molly and Pete Dinklage since relocating to L.A. in 2003. He and his wife have two kids, ages 4 and 2. "To continue their careers on a full-time basis, engineers have to figure out ways to do professional work in environments other than the standard commercial studio. So I've been branching out."

This guy is no newbie. In 1992, he helped configure the first Pro Tools system in the Windy City as a college project, and five years later became a partner in Kingsize SoundLabs. He's also recorded a ton of art-

NEW YORK METRO

by David Weiss

having has decreased dramatically.”

Rob Dennis, president of Super Loud Music/Rack-N-Roll Audio, quickly responded to my question with a picture of how and why he thought some businesses succeed, while others fail: “It’s unfortunate that another facility [Masterfonics] has gone away. Every time I see another studio or publishing company close or move out and a non-industry-related business open on the Row, I cringe,” he says. “On the positive side, the people who have addressed the changing model years ago seem to be doing really strong business. Steve [Tveit] at Omni is a great example of someone who didn’t lie down and give up. He stays solid because he got out and shook the bushes and watched every dime that he spent. I think it’s just watching your bottom line. Also, people like Tom Fouce at the Blue Room in Berry Hill signed an exclusive deal with Brent Maher, who camps out in his room. John McBride has done similar deals with Dan Huff and Justin Niebank. From my perspective, the business has been picking up a great deal in the last year.”

Tveit, general manager of Omnisound Studios, echoes Dennis’ sentiments. “I’ve talked to other studio owners and have heard a lot of doom and gloom in recent years,” he says. “Most of the problems oc-

—CONTINUED ON PAGE 142

PHOTO: JUAN PONTELEZICA



Rob Dennis, president of Super Loud Music/Rack-N-Roll Audio, advises studio owners to keep an eye on their bottom line to stay successful.

Control room? Check. Live room? Check. Pro Tools HD? Check. Killer mic collection? Check. *Soooo*, who’s gonna fly this thing? Almost all New York City studios have a vision, and most of them definitely have the gear, but in a busy facility, selecting the right chief engineer can be what makes or breaks a business.

At Dubway Studios, a New York City recording fixture since the 1980s, one explanation for consistent success dating from 1999 is the presence of their now-chief engineer Jason Marcucci, who brings the studio stability, technical expertise, great morale and solid business leads, along with his full-time status.

“I went into Dubway to engineer some overdubs for a band called Paleface and never left!” says the energetic Marcucci, whose deep passion for his craft is immediately evident. “I was attracted to entering a staff situation as opposed to remaining a freelancer because I really like the process of recording. Working for the studio, it’s a completely different situation each day.

“In just the last three days, I’ve done three different things: Yesterday I worked with [mandolin/banjo/bouzouki player] Chris Thile of Nickel Creek, today I’m working on an *Unplugged* project for VH1 and tomorrow I’m working with an electronic DJ/remixer. But I don’t care if the session is just a voice-over! I like recording so much, and having a studio relationship means you can work on everything.”

At Dubway, Marcucci, whose recent credits also include work with Joss Stone and Moby, found more than

PHOTO: DAVID WEISS



Dubway’s Jason Marcucci (left), Steven Alvarado

just a room with an analog desk (Amek Angela 28x24) and some killer outboard—he found a culture that embraced the team-oriented ethic he brings to the often unnecessarily secretive art of engineering. “The reason we clicked is because we try to share information and teach each other a lot, like miking techniques and how to manage your data,” he explains. “I didn’t stick around long at other studios before Dubway because I wasn’t learning anything new there and people wouldn’t talk about stuff! I’d seen competitive mixers in the same building, and I thought that was ridiculous. Here, I really try to motivate everybody and keep the whole staff excited. I’ve really taught a lot to the interns, and I’ve learned a lot from them and the owners. It’s a pretty open dialog at Dubway, and that’s mainly because they want the studio to run well.”

Technically, Marcucci has been one of the driving forces behind Dubway’s move toward complementing its large John Storyk-designed Yellow Room with three smaller, 5.1-ready suites optimized for mixing the studio’s increasing sound-for-picture workload. “We have more of those rooms because they’re cost-efficient to build, and with all the work we’re doing for TV, it’s great to be able to recall quickly on the Pro

—CONTINUED ON PAGE 142

RAUL MALO'S *AFTER HOURS* THE CHICKEN HILL SESSIONS

In the woods south of Nashville is bassist Jay Weaver's personal studio, Chicken Hill. The facility was designed and installed by its owner in a 1,200-square-foot garage on his 68-acre property, reachable only via a long gravel lane. But if you'd turned down that lane a few months ago and found yourself at Chicken Hill, you'd have heard a familiar voice crooning in the woods. Weaver—who has played on sessions with many of Nashville's finest, including a long stint with Dolly Parton—is now bassist for former Mavericks frontman Raul Malo, and Malo's latest solo effort, *After Hours*, was recorded live in Chicken Hill.

"When I started playing with Raul, I wanted to have a rehearsal in my studio so I could 'spy' on the rehearsal," Weaver says. "I set mics up all around and captured us playing in one room. The piano wasn't even tuned, and I didn't even tell them I was recording. For monitoring purposes, for Raul's vocal I have a couple of speakers on the wall in the main room, and I ran his vocal through them with the 'verb sound that he wanted, and we played in the main room together. We then went into the control room, and I said, 'Hey, Raul, listen to this.' He said, 'I love it,' so we used that same basic setup when we recorded the record."

Weaver's studio comprises a large main room, control room and three iso booths, but rather than use the division of space to separate the musicians, Weaver tailored degrees of bleed between the rooms to suit the songs.

"In lieu of using headphones, we had Raul's vocal coming through those speakers, and I had a mixer in the main room to balance the sound," Weaver explains. "The horn player was in an iso room, and so was the upright piano and Raul's guitar amp. I had the upright bass, the drum set and Raul singing in the main room, and I would balance how far open all of the doors were, and then manipulate the mix that was coming through the speakers until I heard the mix and fidelity I wanted, and I let that sound bleed into all the mics. So the performances you hear on there, that's what you get. That's Raul singing with the band in the room live."

Weaver served as musician and co-producer on *After Hours*, and enlisted the help of an outside engineer, Evan Yorke, to capture the sessions to Nuendo. The studio contains a variety of newer Universal Audio mic pre's, vintage Ampex and Telefunken pieces, and a good mic collection. However, Malo recently visited Tracy Korby's Nashville base to talk mics and came away with enough models to cover the project.



Recording artist Raul Malo (left) and bassist/studio owner Jay Weaver in Weaver's Chicken Hill Studio, where Malo's latest solo album, *After Hours*, was recorded

"I happened to read about Korby online and found out there's someone who's making new 47s and 251s and C-12s," Malo says, "and he's got this convertible system you can change the heads on, and I was fascinated by this. I went over there and saw him, and it turned out he was a fan; he'd seen me play in Pittsburgh. I talked to him about what we were doing, and he was excited. He supplied us with his BLUE mic, which is a 47-like reproduction. We used a couple of FET mics on the piano and a couple on the drums; we also used a couple of 251s. It was pretty much an all-Korby session, though I think on the acoustic guitar I played, it may have been an old Neumann small-diaphragm mic that Jay had."

The album was also mixed by Yorke and Malo at Chicken Hill. It's a covers collection—all vintage country songs arranged in new ways. Even at the height of The Mavericks' popularity, Malo's interest in Latin jazz and pop music always found their way onto the band's "country" records. This album also works in swing and jump blues, while celebrating what Malo calls "the elegant side of country music." A version of Buck Owens' "Crying Time," for example, features piano stylings that are much more Bradley's Barn than Bakersfield. And with the addition of a horn section and an uptempo beat, Hank Williams' "Cold, Cold Heart" channels Louie Prima.

For Malo's part, Chicken Hill was the perfect location for this project. "It's a dream place," he says. "It's cozy and it's got all the vibe in the world. You can pretty much make a record anywhere these days, but when you have a place like that, that's off the beaten path and you're not on the clock, you can really take your time. I realize after making records for major labels all these years we really didn't have time to experiment. You do two songs before lunch, do two more and call it a day. This time around, we wanted to make sure we had plenty of time to try stuff, and we enjoyed every minute of it."

—Barbara Schultz



BEHIND THE GLASS

NOT SO SECRET SOUNDS GRANT, NAJEE TRADE TALENTS



Dennis Chambers at Secret Sound's kit

Producer/guitarist John Grant produced a track for saxophonist Najee at Grant's Secret Sound recording studio (Baltimore, MD). Najee also guested on Grant's independent smooth jazz release, *True Spirit*, featuring drummer Dennis Chambers, bassist Gary Grainger and keyboardist Gregg Karukas.

IN THE FUNHOUSE TRIGGERS AT MR. SMALLS



Standing, L-R: Triggers guitarist/vocalist Adam Rousseau, drummer Rich Kawood, keyboardist/vocalist Brett Zoric, studio owner/assistant Larry Luther, bassist Joe Kasler. Seated: producer/engineer John Hiler.

Producer/engineer John Hiler was at Mr. Smalls Funhouse (Pittsburgh, PA) recording new tracks with the band Triggers for a new CD. Studio owner/engineer Larry Luther assisted during the tracking.

SOUTHEAST

Pop/R&B singer/songwriter Michael Warren was in Nashville finishing up tracks for a new CD, due out this month. Bass and drums were cut at Bletchley Park Studios; all other tracks were cut at producer Stephen Gause's home studio, Invertigo Productions. Gause produced and co-engineered with Jimmy Jernigan... Tim Carter is recording and mixing four tracks for Rounder Records artist Claire Lynch's next CD in his Treehouse Studio (Nashville)...At Catalyst Recording (Charlotte, NC), owner Rob Tavaglione engineered and produced new releases for Angwish and Jagfu.

NORTHEAST

Kurt Lundvall mastered *Duke Ellington: The Complete 1936-1940 Variety and Okeh Small Group Sessions* at his Lundvall Mastering (Jersey City, NJ) studio. Other recent projects include Andrew Hill's *Time Lines* and Joe Lovano and Hank Jones' *Kids: Live at Dizzy's Club Coco Cola...B.B. King* was in Avatar Studios (NYC) Studio C overdubbing vocals and guitar for an upcoming children's book/CD produced by author Sandra Boynton. Roy Hendrickson engineered, assisted by Chad Lupo. In Studio A, producer Steve Lillywhite and engineer Steve Hardy recorded *Razorlight* for Mercury UK. Bryan Pugh and Rick Kwan assisted.

MIDWEST

Rockhouse Studio (Fort Worth, TX) hosted sessions for Earl Musick and Mark Merritt's upcoming fall release, which has the working title *Woodshed'n*. The artists are self-producing and engineering this all-acoustic roots album...At Linder Avenue Recording (Roselle, IL), percussionist Micah Holland tracked and mixed for a promotional project with engineer Dom Palmisano.

NORTHWEST

After performing at San Francisco's Warfield Theater, Regina Spektor spent the next day in Studio 880's (Oakland, CA) Studio C for a playback session. Also in 880, Flypside guitarist Dave Lopez and engineer Reto Peter tracked for Flypside's upcoming album, which is being produced by Akon...San Francisco Bay Area pop/rock artist Alex Karweit completed his debut album, *Enemy*, with producer/engineer Joey Muller at Icehouse Recording (San Rafael, CA). The project was mixed by Mark



Okay, squeeze together. From left: saxophonist Wayne Shorter, producer Larry Klein, Hancock, drummer Vinnie Colaiuta, stand-up bass player Dave Holland, assistant engineer Brian Montgomery, engineer Helik Hadar, assistant engineer Justin Gerrish and guitarist Lionel Loueke.

FIRST TIER JAZZERS AT AVATAR

Jazz keyboard/synth master Herbie Hancock did some tracking for an upcoming Verve release in Avatar Studio A (NYC) with producer Larry Klein. Helik Hadar engineered with assistants Brian Montgomery and Justin Gerrish.

Needham at The Ballroom (L.A.) and mastered by John Greenham at Area 51 Mastering (Richmond, CA).

SOUTHWEST

At Tempest Recording (Tempe, AZ), Clarke Rigsby is completing mixes for a Lissa Wales tribute CD. The project is being produced by Tesla drummer Troy Luccketta and features drummers such as Danny Seraphine (CTA), David Garibaldi (Tower of Power), Steve Ferrone (Tom Petty) and Ian Wallace (King Crimson).

SOUTHERN CALIFORNIA

Westlake Recording Studios (L.A.) hosted numerous sessions this summer, including The Gospel Project with engineer Dave Way and producer Quincy Jones; Queen Latifah with producer James Toyser, engineer John Adams and assistant Antonio Resendiz; and engineer Dave Reitzas remixing *Streisand Live* for 5.1 surround. Westlake also reports that Grammy-winning producer Walter Afanasieff has made the newly renovated Production Room 1 his new base of operations for upcoming projects... Producer Tom Rothrock visited Precision Mastering (L.A.) in June to master James Blunt's upcoming album with engineer Don Tyler. ■

Please send "Track Sheet" news to bschultz@mixonline.com.

onto 40 tracks on his portable HD rig using Pro Tools 7.3.1 HD Accel 2, a Mac G4 and hardware from Digidesign, API, John Hardy, Vintech, Universal Audio, Smart, dbx and Empirical Labs. He's mixing the con-



Gussie Miller combines home studio know-how with vocal stylings to make ends meet.

cert in the box with outboard at his home studio, primarily on Yamaha NS-10s.

Gussie Miller is one of many home studio owner/operators in SoCal, but possessing high-end recording equipment and

knowing how to use it doesn't necessarily pay the bills. Consequently, this 44-year-old single father of two has been "out there doin' it," seizing every opportunity to make use of his wealth of technical knowledge and "schoolboy tenor" with its four-and-a-half octave range. That's nothing new for the Columbus, Ohio, native, who came to L.A., like so many others, for the myriad opportunities the showbiz Mecca has always dangled so tantalizingly.

Back in Columbus, Miller was a local TV celebrity at age 12, and started singing jingles in a local studio soon thereafter, where he caught the tech bug at the first sight of a Neumann mic. He's been bouncing between these two overlapping realms ever since, getting his music and vocals into several TV series while doing tech support and sales for companies such as Tascam and Westlake Audio. But his momentum was interrupted 12 years ago by a bizarre accident. "I was drumming in a *Lion King* event at Disneyland," he recalls, "when I got crushed between a parade float and a fence and nearly died. My back was messed up, and I started my studio with the workers' comp money."

Along with running his West Valley studio, Ars Musicai—outfitted with a G4 and a Focusrite ISA 110, running Nuendo 3 and Reason 3—Miller has made use of his expertise to snag gigs like helping bring Mike Post's private studio in Burbank back online, while assisting on projects for Post and Aussie band Sick Puppies, while continuing to serve as Marcus Miller's go-to tech expert at the bassist/producer's Hannibal Studios on the West Side. Since Marcus Miller heard Gussie's glass-shattering voice, he's made use of it for the CW animated series *Everybody Hates Chris*, the Chris Rock film *I Think I Love My Wife* and the bassist's upcoming album.

Gussie is working on a solo album with writing and production partner Alex Alessandroni, which will feature contributions from Marcus Miller, David Sanborn and other high-profile players with whom he's crossed paths during the years. Along with a number of "irons in the fire," as he puts it, Miller has been chosen as a contestant on the NBC karaoke reality series *Singing Bee*. "The prize is \$100,000, and brutha needs funding for his record," he says with a laugh. ■

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cur because people are stuck in the old way of doing things, blaming what they can't control. You have to continue to be proactive and not just wait for the phone to ring. One day we'll cut a demo, the next day a master and the next day a jingle. We rarely have any client in for more than a day or two. It used to be we could book out a whole month with one client. Those days are gone and are never coming back; you either understand that or you don't."

Dennis' latest venture, Super Loud Music, is "a hybrid company that will handle everything in-house; that is, management, publishing and all things associated with a artist's career." He also recently produced a live CD/DVD for Cross Canadian Ragweed and Universal Records South, and is currently in the middle of producing a live Lynyrd Skynyrd hi-def project. "This 'old-school' mindset that 'I'll ride this out and things will get back to normal' is not going to work," he comments. "I just produced a last-minute remix on a new artist the other day where I did all of the overdubs in town via an FTP site. While I missed the personal interaction, it was a great way to get work done quickly. I will be doing more and more work this way in the future, as it was perfect for my busy schedule."

Tveit feels that part of Omni's success is due to the fact that his business "made a conscious decision early on to find ways to work with home recorders instead of against them. Obviously, home recording has had a big impact on the commercial studio business, and, over the years, my staff guys have actually gone to our clients' homes to help them learn more about operating their gear," Tveit offers. "Our main business is centered on tracking live musicians; we excel in the things you can't do at home. I see major problems ahead for dedicated mix rooms with large-format analog desks. Labels in Nashville are just beginning to accept mixes completely done in Pro Tools. It is only a matter of time until that is the norm."

"I feel very fortunate to have worked and made a living in the Nashville studio business for the last 20 years," Tveit continues. "It has always been a challenge even in the best of times. We never take anything for granted. We are constantly re-evaluating what we do and how we do it. We are always looking to expand our client base and services."

NTS' Quigley brings it all back home, adding, "Music has always been an integral part of people's lives. It entertains and soothes us—that will never change. But the business of music as we know it today is changing,

faster than we think. We are witnessing the greatest metamorphosis the music industry has probably ever seen—and change is good. We, as music industry professionals, must embrace the tremendous opportunity that new technologies offer instead of seeing them as threat to our existence. There are a multitude of avenues in which to generate revenue from the music we love to create and participate in—and not just survive in the music industry, but thrive." ■

Send Nashville news to MrBlurge@mac.com.

NEW YORK METRO FROM PAGE 137

Tools HD2 systems," says Marcucci. "For stereo, I don't mix in the box—I'm summing mixes right now with the Dangerous 2-Bus. I'm certainly hoping that surround mixing continues to grow, because once you mix in 5.1, you never want to go back."

From management's perspective, making Marcucci a full-time staffer was worth the additional capital commitment. "Jason takes on more responsibilities as the on-staff chief engineer," says Steven Alvarado, studio head at Dubway. "He's more invested in what we're doing. If he were completely freelance, he'd be more apt to do other stuff and make what we do not as important. Jason's an excellent engineer, he's got the qualities that you want from someone that you'll be sitting in the same room with for several hours, and he invests himself completely in every project that he works on. His personality traits and quality of his work are an extension of what we do."

"Being on staff, it's nice to be able to concentrate on having Dubway's staff grow, and not just be looking out for myself," Marcucci observes. "In New York City, being chief engineer brings even more of a feeling of responsibility. There are a lot of audio pros capable of doing good work in this city, but we want people to come back and spread the word that everyone here—from the owners to the interns—can make things work."

Way down in the southernmost tip of New York state—Tottenville, Staten Island—word is spreading about one of that borough's best-equipped commercial facilities, Fenix Studios (www.fenixstudios.com), and its chief engineer. "We're in a nice, tucked-away area where you don't have to worry about people walking in on your session," says Kevin Odom, officially "head audio guru" at Fenix since 2001. "You can park here! It's a different environment from what you have in Manhattan, and it's very convenient for people in Manhattan and New Jersey."

Odom's fierce computer and engineer-

ing capabilities led him to begin overseeing recording and mixing in Fenix's spacious, Neve VSP 60-equipped control room around the turn of the millennium. A freelance consultant specializing in optimizing studio systems for Cubase and Nuendo, Odom went into Fenix to perform a quick install six years ago and wound up with a permanent assignment.

Ironically, staying put has helped enormously in satisfying Odom's thirst for adventure—audio adventure, that is. "Being in one place allows you to really experiment with different things," he points out. "The thing about engineering is you never do the same thing twice. Situations constantly arise when you have different singers, for example, and one mic doesn't work for everybody. The more gear you have, the more choices you have for your signal path."

Taking on the responsibility of chief engineer in a major facility can eventually prove to have its drawbacks. For Odom, whose credits include LL Cool J and Vernon Reid, among others, the pressure meant learning how to let go and oversee a trustworthy staff. "I got to record all the sessions—rock, gospel, heavy metal, you name it," he says. "But you get burned out after a while. It's nice making the music, but you notice, 'I'm not smelling the roses, not spending the time with my daughter. I have to have balance.' Once you know where things go in the studio, you can relay the information on to engineers as to how we'll work a particular session, and what mics, preamps, et cetera, were used if I can't be there myself."

"The chief engineer sets the precedent for any other engineer coming in," confirms Tony Hanson, manager of Fenix Studios. "He's like the commander of the platoon: He's a pacesetter who determines the way things are done, the proper routine. Before you look at skills, you have to mesh with somebody and be comfortable with them, and Kevin is always relaxed and in control during a session. Skills-wise, Kevin's computer knowledge is through the roof. He's an expert in Pro Tools and Windows applications. That's half our studio right there, and if anything goes down but can be fixed, he'll fix it."

Odom feeds off the respect and reflects it back to Fenix. "I don't like to tell potential clients who I've worked with," he says. "I'd rather play a CD I've engineered on, and if you like it, then let's see what we can do together. Keep building on the information you've gathered that qualifies you to say, 'I can do this.'" ■

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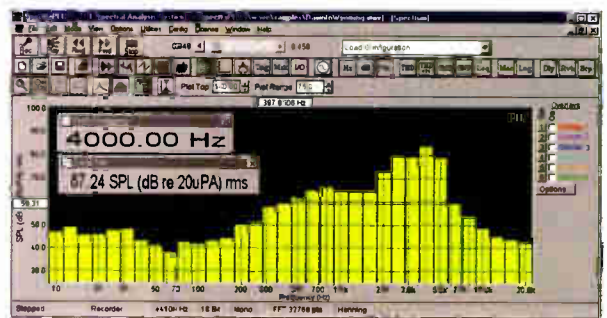
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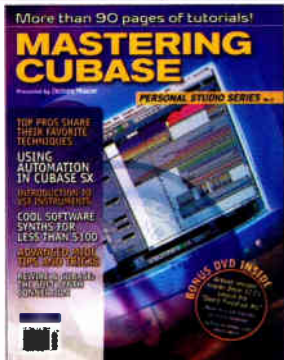
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New hands-on control for DP5

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Solid State Logic AWS 900

Speeding Up Production, Tweaking the Mix

I work with producers Jimmy Jam and Terry Lewis in their Flyte Tyme Productions studios, in Santa Monica, Calif. When we began thinking about gear for the new five-room facility, we considered building custom consoles with a great-sounding monitor section, DAW control, mic preamps, EQs and quality metering. Then SSL released the AWS 900 and we bought five. Here are some of our tricks for using the AWS for tracking, mixing and everything in-between.

TRACKING LIVE

While tracking, I use the AWS as a front end to Pro Tools. I generally get my rough mixes completely in the box, placing my stereo Pro Tools output into the AWS' external input section. This lets me route my console mic/line inputs to the SSL Mix bus and to Pro Tools' direct inputs so our production team can actually hear themselves in case I switch between Pro Tools sessions, or if the computer is off and somebody just wants to work on a song.

When I'm ready to start tracking, I can toggle between my SSL Mix bus and the Pro Tools 2-track output, giving me some nice control over what I hear. I generally stick to a 2-channel, in-the-box Pro Tools rough mix while tracking, unless I'm tracking vocals. Then I keep analog channels 1 through 4 on the console open for Pro Tools outputs, routed to the SSL Record bus. This way, I can stem out a separate vocal bus for the singer and he/she can change the vocal levels on a private cue mixer in the booth. In this mode, I monitor the 4-channel stem mix via the SSL Record bus—essentially, SSL mix bus 2.

FAST VOCAL PRODUCTION

Most Pro Tools users record vocals with a keyboard and a mouse; I do things a little differently. Usually, I set up 20 or so vocal tracks, some for leads and some for backgrounds. Jimmy and Terry like to avoid using layered playlists in Pro Tools for vocal recording because it's hard to instantly see what we have recorded, and it's an extra step when it comes to comping vocals if you want to quickly mute/un-mute takes using only the console faders and transport for playback. Working this way, we lay out the tracks

we want to record to, see them on the AMS 900's DAW control layer and arm those tracks to record while we can change fader, pan, send levels, playback, record, punch-in, solo, mute and locate from the console. I can stay in the middle of the console—in-between the speakers—without a distracting computer screen in my face. It's a refreshing way to work, and I can always hop over to the computer screen to do a quick edit if necessary.

This method is also nice for figuring out vocal comps before putting them together. By the end of the vocal tracking, Jimmy usually has a complete map of the comps he's going to use. He plays back the sections he likes and confirms his notes by muting/un-muting takes without having to rely on someone else immediately editing the pieces together for him. Once he confirms his comp map, we can quickly assemble it in the computer.

REFERENCE MONITORING

The AWS 900's flexible monitor section can accommodate most anything you send into it. I usually have several different external 2-track playbacks patched in, along with my Pro Tools mixes. I can easily reference previous rough mixes and tracks that capture an energy I am looking to build in my current project. I play these reference mixes in real time—in my Pro Tools session—lined up with the timing of my current project, assigned to different outputs than my mix is assigned to so I can seamlessly A/B between the mix and references.

THE BASS BUMP

The console's bass management can output an LFE channel for surround or stereo. When mixing 2-channel material, I usually listen to my small speakers—flat with no subs attached—but sometimes during writ-



ing sessions where the producers want to feel an extra bottom-end punch, turning on the bass management provides more power and reduces the stress on my speakers at higher volumes, avoiding a lot of blown drivers. In the monitor section, press Monitor Options, select Bass, and then select 80 and BMN.

THE MIX

We have 32 Pro Tools outputs and use all of them when mixing. In the end, we have about 30 tracks—15 stereo submix stems—coming out of Pro Tools and into the AWS' analog channels and aux returns, with another stereo output for playing reference mixes. From here I add compression to the stereo mix from the AWS' center-section stereo compressor. I may use a little channel EQ here and there, or some filters, and a couple key channel inserts on drums/bass, etc.; combined with the submixing and plug-ins in Pro Tools, we get a powerful mix, using the best of both analog and digital.

I store console recall settings in my Pro Tools session as MIDI sys ex data and my assistant writes channel-insert outboard gear settings directly in the corresponding tracks' comment field. This way, all recall data is easily found for both the console and outboard gear, and we can easily get a mix back up. ■

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