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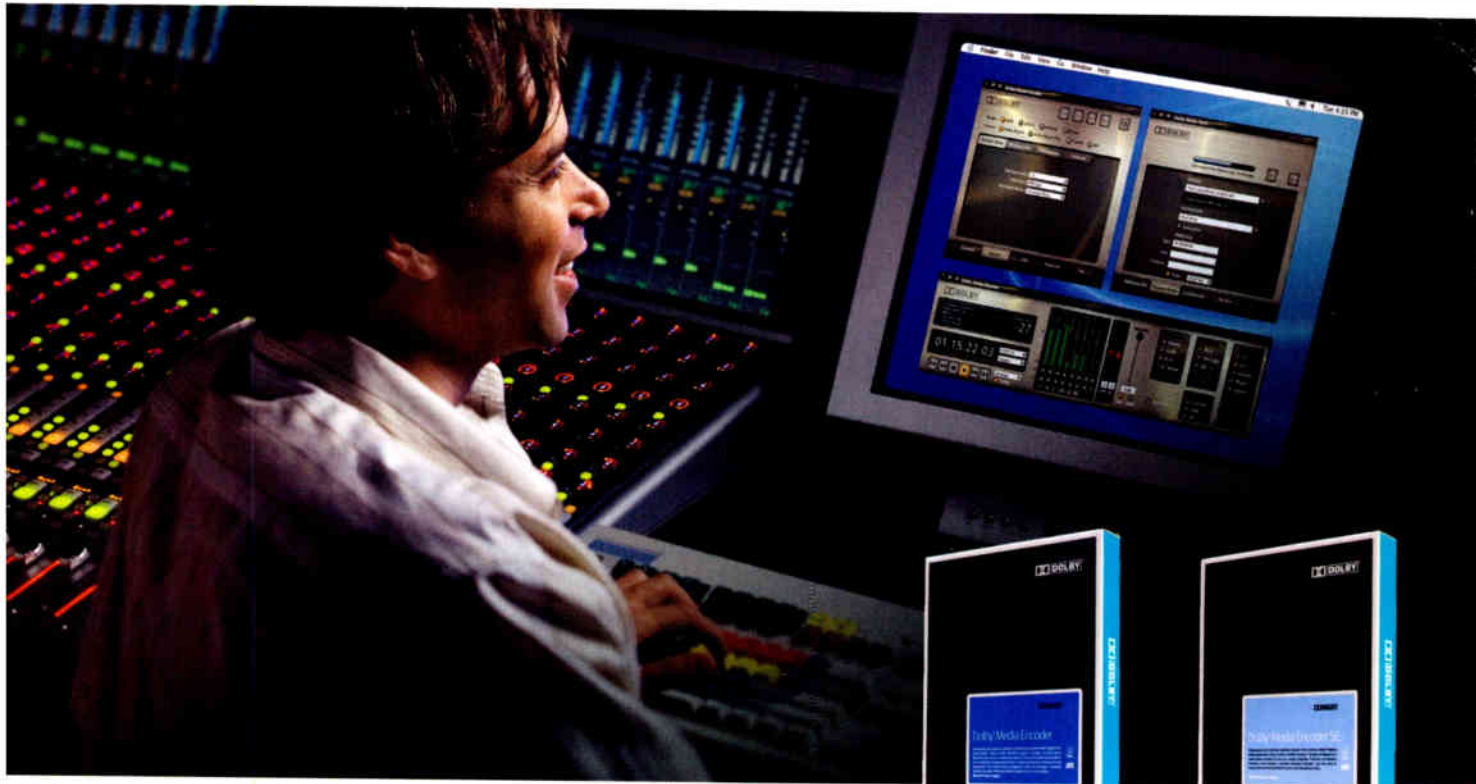
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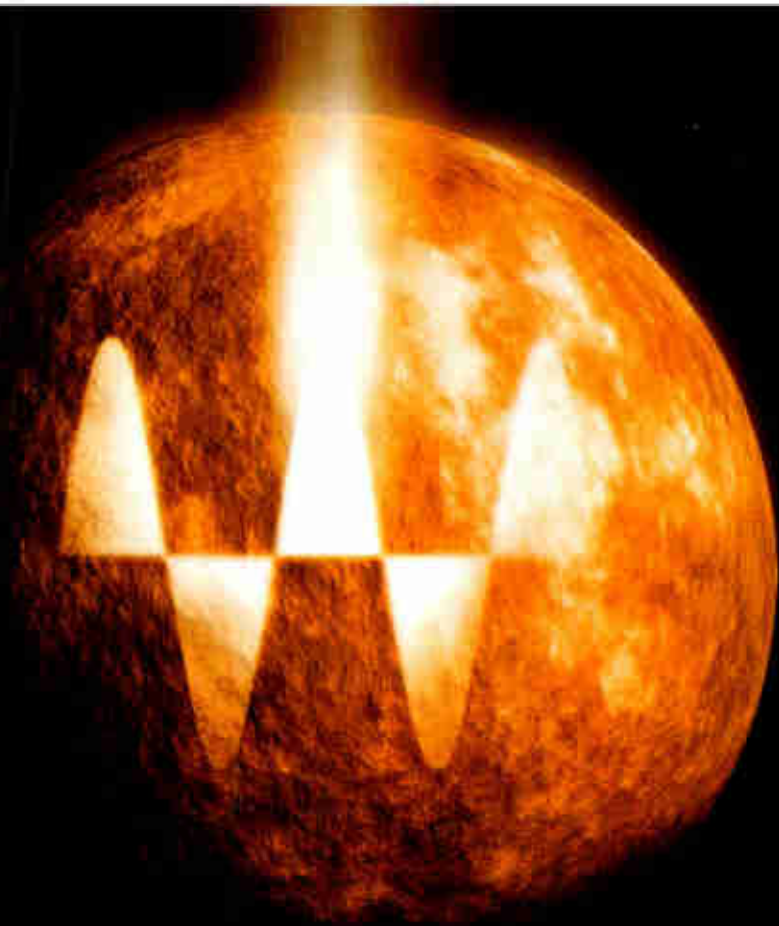
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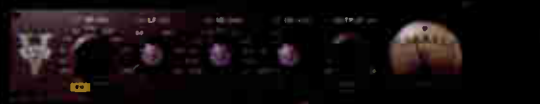
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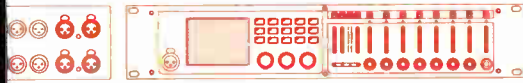
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Dirk Durham



The Toby Keith Big Throw Down II tour audio crew, L-R: Ryan Reynosa, Monitor tech; Russell Fischer, System Engineer; Dirk Durham, FOH engineer; Earl Neal, Monitor Engineer; John Brawner, System Tech.

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MIX
30
YEARS

PROFESSIONAL AUDIO AND MUSIC PRODUCTION
FEBRUARY 2007, VOLUME 31, NUMBER 2

features

26 Recording Wild

We asked for your most extreme studio sessions, and boy, did we get them. Tons of your radical recording tales flooded our inbox. Who knew that a Japanese bowl sitting on a café table could make a wonderful percussive sound? Or that you could use a pair of cell phones onstage to create “space-age” echo? Check out the most bizarre, inventive—or just plain odd—stories from the frontline.

30 Mics in the Stereo Realm

With their ease of use, precision and versatility, dedicated stereo microphones are sometimes just the ticket to capture both studio recording and live sound applications. If you're in the market for a stereo mic, whatever your application or budget, check out our comprehensive guide.

36 Mix 'n' Match Monitoring

In the live sound world, musicians can have their cake and eat it, too—that is, wear in-ears to keep their hearing intact and still rely on wedges so they can continue to “feel” the music. *Mix's* sound reinforcement editor, Steve La Cerra, checks in with top monitor mixers, who provide their road-tested tips and techniques to deal with this dual personality.

IN STUDIO

44 KC Porter and Ozomatli

Fusing together jazz, funk and Latin salsa with urban hip hop to create celebratory musical inspirations, Ozomatli is once again making magic in the studio—this time at Ocean Way Recording (Los Angeles) with engineer Robert Carranza and lyricist/co-producer KC Porter. Mr. Bonzai gets an inside look at the making of *Don't Mess With the Dragon*, due out next month.



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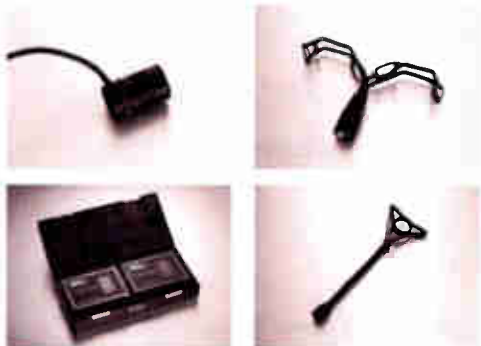
On the Cover: Hal Winer's recently expanded Bi-Coastal Music (Ossining, N.Y.) is everything Zen: a warm, natural-sounding live room complemented by a Pro Tools HD/SSL C200-centered control room for surround sound. **Photo:** Dave King. **Inset:** Steve Jennings.



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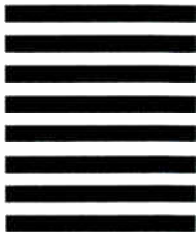
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NATHANIEL KUNKEL

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Fuel

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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."

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Breaking the Rules

History is filled with cases of inventions that either happened by accident or yielded results that were far from the original intent. In 1928, researcher Alexander Fleming noticed that mold spores from an open window were killing the bacteria cultures he was raising, leading to the discovery of penicillin. 3M's Post-it® notes were borne from a decades-old adhesive formula—originally thought to be a failure because it was not permanent. Closer to home and a bit more recently, Yamaha's SubKick bass drum transducer came from studio engineers who found that certain woofers would function as usable microphones with ultralow-frequency response.

Historically, the recording studio has been a ripe environment for experimentation. Les Paul's early experiments with sound-on-sound recording and multitracking took years to become mainstream techniques. Ross Bagdasarian Sr. won a Grammy Award for combining normal-speed music tracks with double-speed voices for The Chipmunks.

By the 1960s, producers, artists and engineers were more than anxious to stretch the boundaries of traditional studio operations to discover and develop new sounds. Can anyone really forget that cash-register-used-as-percussion-device in Pink Floyd's "Money"? Sure, sound effects can provide a cool musical motif, but we all have limits. How many times does anyone really want to listen to samples of barking dogs performing "Jingle Bells," anyway?

That said, a bit of creativity (whether planned or accidental) can occasionally get you out of a rut. Are you so set in your ways that you always mike a drum kit, Leslie or guitar amp the same way? Sometimes, something as simple as switching a mic out of that cardioid setting can really open up a track. Some months ago, I recorded an acoustic bass using a figure-8 pattern, which provided the right blend of articulation with the space of the room. Hardly earth-shattering, but a nice twist nonetheless.

These days, re-amping a recorded guitar track and routing it back through a miked amp is almost standard studio practice. One odd, but useful variant on this technique involves feeding a send of a recorded snare track to a speaker taped on the top head of a snare in the studio, miking the underside and layering that signal onto the original snare track for a thicker sound. It's not as simple as triggering a sampled snare for doubling/track replacement, but if it works...

In the studio, a little experimentation and breaking a few rules can add to the creativity, but it's best to understand the rules before thrashing them. You might think recording high-level, low-frequency square waves could be fun. But when your mix starts blowing out your listeners' speakers, somebody's gonna be unhappy!

In search of truly nontraditional studio techniques, we present our annual look at "Radical Recording." Our features editor, Sarah Jones, surveyed a sampling of *Mix* readers and assembled a collection of entertaining insights into outré recording. You might try a few of these on your next project, but if you do, please use caution (particularly around electricity and water), and remember that not every song is begging for an unusual effect. You'll know the ones that do.

George Petersen
Executive Editor

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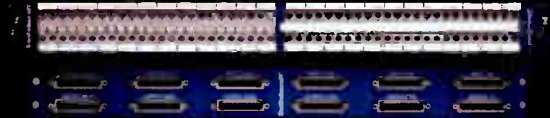
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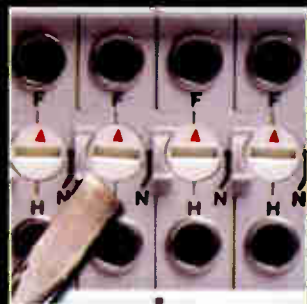
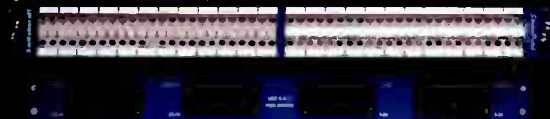
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World Radio History

Letters to Mix



HOW ABOUT A "CLEAN" LOUD?

Blair Jackson's "Issues in Modern Mastering" (December 2006) touched on a very important issue: Loudness wars rage on. As a broadcast engineer of many years, I have experienced the race for loudness on the AM and FM radio dials. For a broadcast station's signal to be "loud," it must also be clean. A clean audio signal presented to an audio processor can be made loud, yet still listenable—and by listenable, I mean without objectionable distortion.

Herein lies the problem. No matter how clean an audio chain is, it cannot undo deficiencies in the source material. Many broadcast stations dub CDs onto a hard drive-based audio storage system. This introduces digital (data) compression. The audio path may introduce yet another layer of compression. Then the audio is processed for broadcast (volume compression, limiting, clipping). Then add to the mix the fact that many stations have to download the music—many from MP3 sources! The end result is a very degraded sound.

The promise of the compact disc media was improved, high-fidelity audio. How that promise is being abused.

Thomas G. Osenkowsky
Radio engineering consultant

DON'T FORGET SOFTWARE!

I read "Issues in Modern Mastering" with interest. A fair amount of ink was devoted to high-end analog tools, but I was surprised that there was not more information on software tools, even though one of the engineers interviewed does a lot of Pro Tools work.

High-end analog mastering is in the province of engineers with the deep pockets, maintenance crews and the expertise to do it

properly. But the fact is that those of us who labor out in the trenches often have to come up with mixes that are going to go on the air, to post, or straight to MySpace, iTunes or indie release. It's not an issue of whether or not we will do mastering; it is how well can we pull it together in a DAW environment. Any tips we can get to improve our work are much appreciated.

Jon Gordon
Jon Gordon Music Production

LISTEN UP

I just finished reading Maureen Droney's editorial ("Current," October 2006) on our industry's growing (more often lack of) attention to listening volume—thanks for trying to enlighten us. The article was informative and hopeful, but referred mainly to studio monitoring. Yes, we can translate it to any music environment, but I have a personal issue with live sound.

I am a musician, recording engineer and small sound system designer, and am sad to say that the majority of live sound that I experience is not very good and too loud. The technology has enabled us to provide audiences of thousands with incredible high-fidelity sound, but more often than not, it seems to provide a platform for owner/operators of this technology to beat their chests and use every watt their amps can put out just because they can. Granted, there are many fine engineers striving for sound quality (and achieving it), but should there be some kind of prerequisite for operating equipment that could impose a hazard on innocent concert-goers?

Randy Quan
Zone Music & Recording

STUDIO ESSENTIALS EXPANDED

This is in regard to the November 2006 article "Outfitting Your Dream Studio." Only one of the three outfits (the \$150k one) mentions a UPS, which, in my humble opinion, is core gear for any studio.

The \$25k studio recommends spending \$1,000 a year on 100 GB of online offsite backup. This amount of money buys several reusable terabytes of drive space that can be kept remotely (i.e., the engineer or client takes them when the session is over) and does not rely on the Internet.

Also, not one of the studios has more than one set of monitors. There's no mention of room tuning, the core of translation to the

real world. These articles spend far too much money on name gear and way too little on essentials.

Nick Joyce, Dwayne D. Dawg, Busta Drüle
NP Recording Studios

THE SURROUND STATION

After having been in the recording business since shortly after Ampex released its first multitrack recorder, I've read a lot of articles on and about audio. [Paul Lehrman's] article in the October *Mix*, "Surrounding the Audience," is unquestionably the best written about what happens to 5.1 surround after it leaves the remote truck at a sports event. Your article clearly explains the pitfalls television audio seems to fall into on many of the broadcasts I watch. It should be considered mandatory reading for TV broadcast people.

We live 50 miles from Chicago, and because Illinois is very flat, from my roof on a clear day, I can see the Sears Tower where most of our off-the-air TV comes from. In metropolitan Chicago, Comcast is our cable company and they do a pretty good job, so there is no need for an outside antenna. One of the Chicago White Sox's sponsors is Comcast, and they don't carry WCUI-DT on the cable, so if you want to watch a game in hi-def, you need an antenna. Go figure.

But probably the biggest problem is when Comcast carries the games on Comcast Sports Net. Trio Video handles most of the games, and they have good audio people. Watching the game, they do a nice job of surround, stereo ambience left- and right-front, the announcers are at the correct level and center-speaker only, and stereo audio is in the rear. When it comes time to insert commercial—bang—the audio is mono out of all five speakers and about 5 to 10 dB louder! Sometimes when they switch back to the ballgame, it's mono and just as loud as the spots were, and then someone hits the button and magically there is nice audio again. I find it hard to believe that I'm the only person in Chicago who hears that.

TV audio has always been sort of a step-child; I sure hope it gets adopted soon.

Mike King
ARU Chicago

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AHMET ERTEGUN, 1923-2006

I was really intent on making certain kinds of records, which, in my mind, would repeat some of the emotions I got from records I'd listened to in my collection that gave me thrills. I wanted to make records that sounded like the records I loved. I thought that I could reproduce that somehow.

—Ahmet Ertegun

The founding chairman of Atlantic Records (along with brother Nesuhi, engineer/producer Tom Dowd and producer Jerry Wexler), Ahmet Ertegun passed away on December 14 in New York City. He had been hospitalized with a head injury since October 29, when he fell backstage at a Rolling Stones concert at the Beacon Theatre in Manhattan.

According to Atlantic chairman/CEO Craig Kallman, "The music community has lost a pioneer and an icon, and we have lost our father. Ahmet changed the course of modern music and culture, and he will live on through the timeless legacy of work that was created under his direction and care. Musicians loved him because he truly loved them and spoke their language."

"Ahmet never stopped working, because for him, it was never work, it was life," said Atlantic president Julie Greenwald. "He started Atlantic with a fan's enthusiasm, an independent spirit and a deep understanding of the music. Ahmet touched the lives of artists, producers, songwriters and countless others who were blessed by his creativity, wisdom and humor. He changed the music and he changed the music business, and he is the inspiration to an entire new generation of music people who will strive to follow in his amazing footsteps."

Artists whom Ertegun helped mold include Ray Charles, Big Joe Turner, Ruth Brown, LaVern Baker, The Clovers, The Drifters, John Coltrane, Ben E. King, Bobby Darin, Sonny & Cher, Aretha Franklin, Otis Redding, Solomon Burke, Wilson Pickett, Led Zeppelin, Eric Clapton, Crosby, Stills, Nash & Young, the Rolling Stones, Bette Midler, Roberta Flack, Phil Collins and many others.

Ertegun was also founder and chairman of the Rock and Roll Hall of Fame; he was elected to the Hall of Fame in 1987, and the Museum's main exhibition hall in Cleveland bears his name. In 2000, the U.S. Library of Congress honored him as a "Living Legend."

To read a full biography on Ertegun and sign the guestbook, as well as watch a video on his career, visit www.atlanticrecords.com/ahmet.

PHOTO: CAROL FRIEDMAN



ALL FOR ONE BOCK TAKES SOUNDELUX



David Bock, designer and co-founder of Soundelux Microphones, acquired the rights to the Soundelux Microphone company; the deal is scheduled to be finalized early this year. The agreement includes using the Soundelux name, all of the microphone design and manufacturing rights, all microphone model number/designations and current inventory. Sales and customer service contacts remain the same.

TEC AWARDS TO STORM NYC SITE, DATE ANNOUNCED FOR 2007

The 23rd Annual Technical Excellence & Creativity Awards will be held Saturday, October 8, 2007, at the New York Marriott Marquis in New York City. For ticket information, contact Karen Dunn at 925/939-6149 or Karen@tecawards.org. For sponsorship information, contact Eric Geer at 925/287-1657 or Eric@mixfoundation.org.

The TEC Awards nominating panel is now accepting product nominations for this year's awards show. To be eligible, products must have been released and in commercial use during the period from April 1, 2006, to March 31, 2007. "Call for Entry" forms can be found at www.mixfoundation.org. All entries must be returned by Wednesday, February 28, 2007, to TEC Awards, 1547 Palos Verdes Mall #294, Walnut Creek, CA 94597; fax 925/939-4022; Karen@tecawards.org.



NOTES FROM THE NET

MASTERING FOR ALL

Geared toward the indie music community, Sony Music Studios Internet Mastering (SIM, www.SonyMusicSIM.com) brings the art of mastering to all artists by accomplished engineers for a fraction of the normal cost (starting at \$99 per track for four songs per project).

"Having personally trained many of the younger engineers on our staff [including mastering engineer Mark Santangelo, right]," said Sony Music Studios' senior mastering engineer, Vlado Meller, "I know that they can bring tremendous value to the projects submitted through SIM. It gives the team a chance to work with fresh talent and provides a wide range of fascinating new challenges and opportunities to our engineers. At the same time, it gives unsigned musicians access to the talented engineers here." Other engineers on staff include Dave Kutch, Mark Wilder, Vic Anesini, James Cruz and Steve Kadison.



"The songs I put through the SIM system came back sounding like a major-label release," said Andrea "Fanatic" Heard, a Grammy-winning record producer/recording artist. "The studio brought my mixes to life in a way that's impossible to achieve through home systems or through ordinary Internet mastering services."



ON THE MOVE



Who Spencer Nilsen, Ex'pression College of Digital Arts president/creative director

Main responsibilities: to provide a creative environment and inform an up-to-date curriculum; and communicate and promote our culture to the faculty and staff, and the outside world.

Previous Lives

- 1990s, head of SEGA music division; founded Sega Music Group; composed/produced soundtracks for many videogames
- recording artist, American Gramophone

My favorite moment at Ex'pression was... last week, when Chuck D and Flavor Flav of Public Enemy dropped by. They were incredibly generous with their time, hanging out in the lobby for well over an hour, signing autographs and snapping pictures with the students. Then they invited the students to be part of their latest music video, which was shot in our SSL 9000J control room and studio. None of this was planned, but it went off without a hitch.

The last great book I read was... *Deep Survival: Who Lives, Who Dies, and Why* by Laurence Gonzales. It uses amazing stories of survival—from the Holocaust to 73 days adrift alone at sea—to demonstrate the incredible power of a positive mental attitude.

If I could have been a fly on the wall for any recording session, it would have been... "We Are the World" to watch Quincy Jones wrangle that session.

Currently in rotation on my iPod: The Mars Volta's *Deloused In the Comatorium*, *The Prayer Cycle* by Jonathan Elias and Keith Jarrett's latest, *The Carnegie Hall Concert*.

When I'm not at work, you can find me... running like a madman around the entire campus! There is so much going on every day, I don't want to miss a thing so I'm rarely in my office, which can sometimes frustrate my staff.

BOOKSHELF

The Golden Moment by Keith Hatschek brings you inside the minds of numerous top engineers and producers, who relay anecdotes and tips from their careers through interviews and essays. Providing a new forum on mentoring, the book showcases such top producers as Bruce Swedien, Al Schmitt, Bob Rock, Jimmy Douglass, Mick Guzauski and so many others. Backbeat Books, \$19.95.



INDUSTRY NEWS



Gary Summers

New faces at **Todd-AO Studios** (Hollywood): sound re-recording mixers **Gary Summers**, **Ken Teaney** and **Liste Engle**...Jumping from L-Acoustics to **JBL Professional** (Northridge, CA) is **Paul Bauman**, director of four sound product and application engineering; in other company news, **Buzz Goodwin** was named executive VP of sales...New VP of sales for television services at **Ascent Media's** (Santa Monica, CA) Creative Services Group is **Jeff Beaulieu**...**Paul Roberts** was promoted to **Symetrix's** (Mountlake Terrace, WA) director of domestic and international sales, while **Ray Tantzén** joins the firm as product and

training specialist/field engineer...New sales director for Europe/UK, the Middle East and Africa for **Crown** (Elkhart, IN) is **David Budge**...**Sennheiser** (Old Lyme, CN) news: **Brad Stephens**, national sales manager for **Turbosound** and Southeast sales rep for **Neumann** and distributed brands; **Bob Tamburri**, sales rep; and **John Page**, industry team leader, music industry...**Scott Lombardo** joins **Fishman** (Wilmington, MA) as national sales manager...**Digital Audio Denmark** is now on **Las Vegas Pro Audio's** (Las Vegas) list of direct-sell brands...New distribution deals: **Linear Acoustic** (Lancaster, PA) names **Comprehensive Technical Group** (Atlanta) and **Roscor Corporation** (Mt. Prospect, IL) as exclusive dealers in the Southeast and Midwest, respectively; new **Allen & Heath** (Agoura Hills, CA) Poland distributor is **Konsbud-Audio**.

Go beyond the printed page and log on to www.mixonline.com to get extra photos, text and sounds on these select articles:



Monitor Mixing

READ: We know there are more monitor engineers out there who are mixing bands on IEMs and wedges than those profiled in this article. Find out what other engineers have told *Mix* during the past few years. Tell us what you're doing at mixeditorial@mixonline.com!



"Project Studio": Echo Mountain

WATCH: Take a guided tour through this Asheville, N.C.-based studio.

Recording Notes

LISTEN: Hear audio clips from Five for Fighting, George Jones and Merle Haggard, and "Pink Houses."

PLUS: visit the all-new "Cool Spins Online," where you can find additional CD reviews and senior editor Blair Jackson's bi-weekly "DVD Watch"—all from one convenient spot!



"The Inside Track"

PLAY: We got such a great response from all you radical recorders out there that we're continuing to ask for your stories. Next month, we continue our series "The Inside Track" with technical editor Kevin Becka, who focuses on mixing vocals. Got a cool tip or technique? We want to know! E-mail us at mixeditorial@mixonline.com.

TALKBACK

NOTES FROM THE P&E WING

THE ART OF LISTENING

BY MARK RUBEL

If someone asks you what you do, you're likely to say, "I make records," or "I mix concerts." After all, it's a natural tendency for us to focus on external actions. But the complementary, and possibly more important, companion to that external action is the internal thought processing that goes into deciding what to do—in other words, listening. If you are engaged in creating recordings or live audio events, then you are, essentially, a professional listener.

If we really want to be good at making records or mixing concerts, then it's crucial to understand our work's true nature. The essence of recording, and other audio and video production, is communication. We realize thoughts, emotions, ambiences, words, melodies, rhythms, etc., for others to experience. As a communication form, creating and recording music is a multilayered process: on the one side, conjuring, encoding and sending the message, and at the other end, decoding, receiving and internalizing it. For this process to be meaningful, compelling and, hopefully, commercially viable, there must be a high level of listening at every stage.



MUSIC AND SOUND IN GENERAL

The most important aspect of becoming a professional sonic artist is developing an educated and analytical ear. A recording engineer, for example, should be familiar with the sounds of all eras of recording. Today, artists draw from that legacy to create their music. Mastery of the sonic identities distinctive to each era facilitates better communication with clients and their music. And if you intend to create something new, it's useful to know what has already been done.

YOUR CLIENTS

If an engineer takes a project in a particular direction without first communicating with the others involved, then he or she is guilty of questionable business and creative practices—as well as risking alienating them. Communication is key in a collaborative process. The better you are at listening and expressing yourself—at all levels—to your fellow adventurers, the more coherent the direction will be, the better the results and the happier your clients.

THE SOURCE

As we learn to capture and manipulate sounds, we accumulate knowledge about what methods and tools tend to work well in different applications. However, it's important to resist the tendency to habitually use that technique. One of the few real rules of recording is to listen to the player and his or her instrument before placing microphones. Have them play their part and walk around them while listening. Where does it sound like what you imagine it should? What do you like about it, and what would you like to change?

YOUR INTERNAL EAR AND HEART

The process of recording, in some ways, is comparing the way your work is coming out to what you imagine it *should* sound like. Perhaps what distinguishes an artist from a technician is how attuned the artist is to his or her inner ear and instincts. The place from which songs seem to come to their writers might be the same place that tells the sonic artist what something should sound like.

The art of listening develops over a lifetime. To the same extent that we need to listen with an ear toward the way the public will hear the piece, we also need to encourage the practice of deep listening in our audiences, our fellow music-makers, our students, protégés and, of course, ourselves. ■

Mark Rubel, a member of The Recording Academy's Producers & Engineers Wing, has been making records since 1980 at his Pogo Studio (www.pogostudio.net) in Champaign, Ill. With the help of his beloved wife, Nancy, he cultivates many songs, musicians, audiences, students—and cats!

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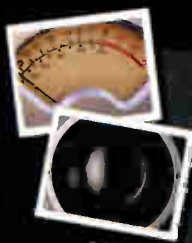
- **Jack Joseph Puig**

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- **Dave Grohl**

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BiCoastal Music

By David Weiss

The reason Hal Winer named his gorgeous new Ossining, N.Y., recording room BiCoastal Music (www.bicoastalmusic.com) may have to do with the long road he followed—from New York to L.A. and back—to make it happen. “In the ‘70s, my father got an investment opportunity in a jingle house in New York City,” Winer recalls. “I had been playing music since I was a kid, I went to see the studio and I was done—I had to own a recording studio.”

Winer developed his skills as an audio engineer and went on to land an internship at a New York studio, but he quickly grew frustrated with making coffee instead of music. His next stop was L.A. for more of the same, leading to a detour as a union set painter in Hollywood, and then back to New York City for a stint in the family business. When an opportunity to cash out came, Winer jumped on it, and in 1997 got the Ossining property, which is 40 minutes from Midtown by train.

The first incarnation of BiCoastal paid Winer back handsomely, landing him two Grammy nominations for his first label project there, *Reunion* (2001), by jazz guitar great Jack Wilkins. “As a result, it became known as a jazz place, but it got too small after a couple of years,” Winer says. “So I decided to make the studio bigger. I sent out a mini-bulk e-mail to various acousticians and designers, telling them what I do, that I didn’t have much cash and that I needed help in making this place work. Russ Berger [of Russ Berger Design Group] called me the next day, and we just hit it off.”

“At first, I just wanted a bigger place for my own work, but Russ felt my idea was right for the current industry climate—that I could expand and cater to freelance clients,” Winer continues. “The record industry was a mess, big city studios were having a lot of trouble at the time and the overhead up here was much lower than it was in New York City. On the creative side, I was close enough to the city to still be a player, but far enough away so that artists could feel like they were getting away.”



Cocktail time at BiCoastal. L-R: Mick Guzauski, Ben Parris, Rob Thomas, Neil Dorfsman, Daryl Bornstein, Hal Winer and Joy Rose.

The newly expanded facility brings a seriously elevated dimension to the just-upstate recording scene of Westchester County. It starts with the warm, open and natural-sounding 25x30-foot live room with 22-foot ceiling. “It’s got a very smooth and natural decay,” he says. “Russ calls it a loosely coupled space: Everything below the soffit is diffuse and absorptive; everything above is live and reflective; and the pairing results in a room that’s very easy to work in. In a typical month, I’ll host woodwinds from the New York Philharmonic, an acoustic jazz trio and a rock drums session. The natural room ambience works with all of them, and clients come here because of it. Add that to rooms with natural daylight, and you’ve got a very pleasant experience.”

While everything’s Zen in the live room, BiCoastal’s ergonomic control room bristles with up-to-the-minute technology. At the center of the Pro Tools HD and 5.1 surround-equipped room is an SSL C200 with plenty of I/O and Pro Tools control from its surface. “The C200 sounds great, it’s easy to use and I can turn projects around in 30 seconds,” Winer says. “When it comes to the outboard gear, I thought it was best to give engineers a selection of mic pre’s, so we have units by Daking, Manley, Chandler, Vintech and Millennia. We also have a nice selection of vintage squashers and effects:

TC Electronic, Lexicon, Daking, Universal Audio, Empirical Labs, Pendulum and Eventide, among others.”

When it came to selecting the right gear for critical listening, Winer found himself facing a dilemma. “I called all the engineers I knew and I couldn’t get two of them to agree on a brand of monitors they liked. It was important to have mains that people could actually use. So Russ suggested that I come to Dallas and listen to his Precision Kinetics custom monitors. I was totally impressed. The speakers are not fatiguing in any way, and they’re extremely smooth, accurate and revealing. For 5.1 work, we also have an extra pair of surrounds permanently mounted behind the producer’s desk to ensure that the producer will get an image similar to the engineer’s behind the console. The room is a wonderful listening environment, and the monitors make for mixes that translate very well.”

With recent clients Rob Thomas, Matt Serletic, Neil Dorfsman, Mick Guzauski, Jay Newland, Daryl Bornstein, Scott Hull, Gary Tole, Bob Mintzer and David Sancious, word is getting around about this oasis. As for Winer, he knows he’s definitely found a home. “It’s about listening for me,” he says. “It still gives me goose bumps to sit down in front of the console and listen to an amazing mix.”

David Weiss is Mix’s New York editor.

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World Radio History

Get Your Game On

The Joys and Woes of Audio for Videogames, Part I



ILLUSTRATION: HUGH D'ANDRADE

If you've been playing (or watching your kids playing) any new videogames recently, you've probably noticed that the soundtracks have become incredibly sophisticated—not to mention loud. The loud part isn't worth discussing much—except please turn it down, for your own sake, especially if you're playing on headphones—but the sophisticated part is pretty amazing. Although most of the folks reading this have had to deal with complex mixes for recording, broadcast, live sound or film projects, how many have done projects that have to mix themselves on the fly, in real time, in the audience's living rooms? Well, if you've done any game audio in the past couple of years, that's just what you've been doing.

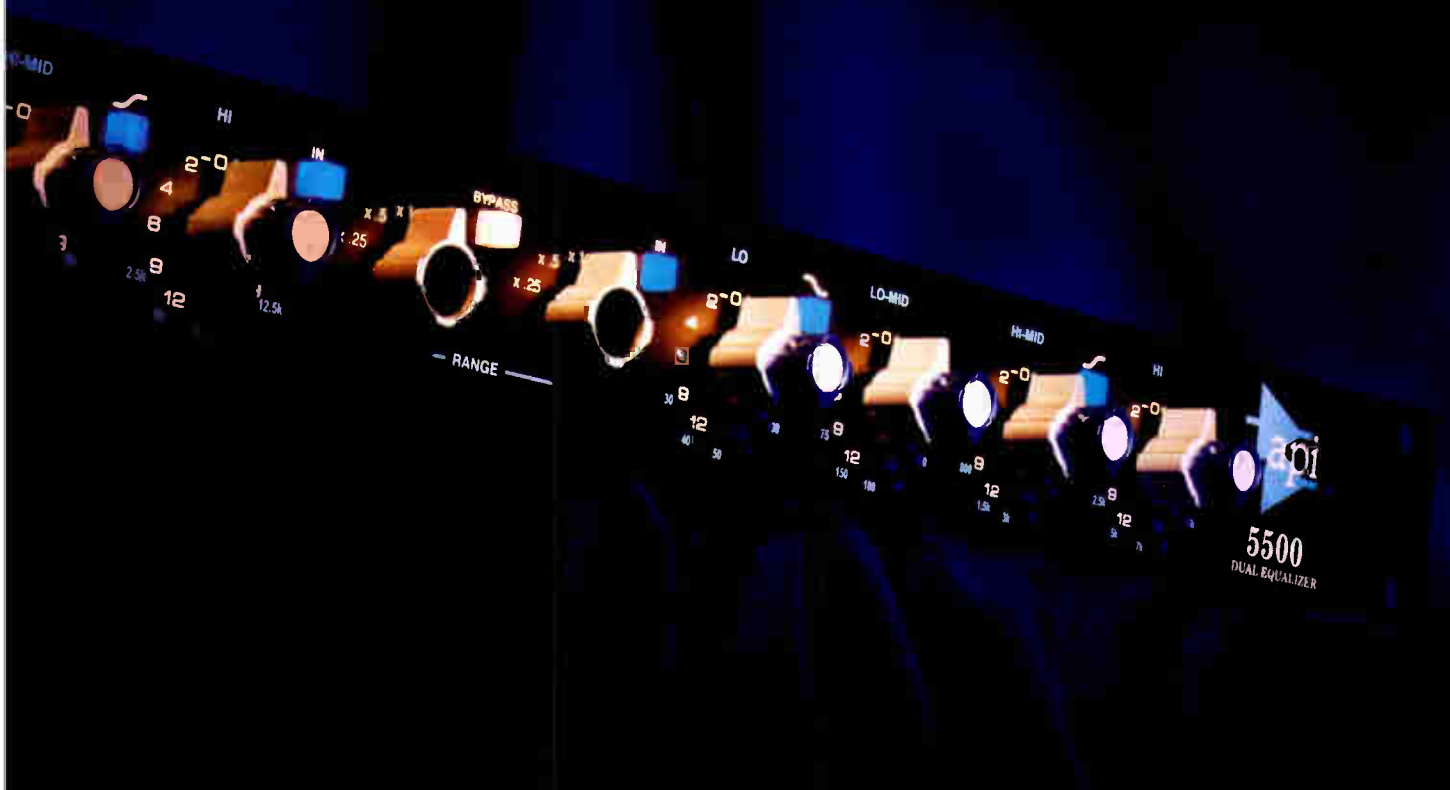
I have to confess that I don't have much to do with the videogame world these days. In the late '80s, I did the music for a game that a friend of mine was designing. I had to write several 30-second tunes and turn them into standard MIDI files (which were brand-new at the time). I was asked to do three different versions of each one to accommodate systems that could play two, three or four different musical sounds (that is, in-

dividual notes, not files) at a time. Oh yeah—and they had to be able to loop. I don't know if the game ever got finished.

A few years later, I got a gig creating MIDI and audio files for a fledgling company called Harmonix, which was developing a musical game with some interesting interactive aspects. The company ended up not using any of my music, and it turned out that the game wasn't terribly successful. But Harmonix has done better since: Last September, Viacom bought it for \$175 million. Unfortunately, I have not been paid in stock options.

The fact that Paramount Pictures and MTV's parent company would throw that kind of money around is just one indication of how serious the game industry has become. So is the fact that within a week of its release, the Sony PlayStation 3 was selling on eBay for up to four times its list price (assuming the sellers actually had them and weren't planning on shipping bricks). Music budgets on some "AAA" games from major publishers are approaching those of feature films, and more than a few orchestral musicians are finding themselves playing as much on game-scoring sessions as they are on movie

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Phat's good.

soundtracks. Not to mention that orchestras from London to Brazil to New Zealand are putting on concert programs comprising partially or completely game music to attract new audiences. Tommy Tallarico, a prolific California game composer who is one of the prime movers behind Video Games Live, told the BBC recently that these concerts will “revitalize” classical music in the 21st century the way opera did in the 19th. (It did?) I don't know if listening to a medley of hits from *Pong*, *Mario Brothers* and *Warcraft* is artistically on the same level as *The Magic Flute* and *Tosca*, but the audiences seem to be having a good time.

Mike Verrette is a producer for midsize game-development company Iron Lore Entertainment, located in one of the old mills in Maynard, Mass., where the once-mighty Digital Equipment Corporation (DEC) made its home. Verrette is a drummer, a composer and a sound designer, and he was a student of mine some 10 years ago. He cut his teeth in television and commercial production, and then started working in the videogame world about five years ago. He is the founder of the New England chapter of the Game Audio Network Guild. Iron Lore, which he joined in 2004, employs some 38 people, including one full-time

composer/sound designer, the position Verrette started in and now oversees.

Iron Lore is best known for *Titan Quest*, a first-person action game for the PC built around ancient Greek and Egyptian myths; it was released this past June. The expansion pack with new characters and situations, *Titan Quest: Immortal Throne*, ships next month. The game is published by THQ, a huge outfit that handles titles from *Scooby-Doo and the Cyber Chase* and *The SpongeBob SquarePants Movie* to *WWE SmackDown! Here Comes the Pain* and *Full Spectrum Warrior: Ten Hammers*.

According to Verrette, the music and sound production for *Titan Quest* are pretty straightforward in some ways. “It's almost identical to doing film post,” he says. “We designed a room around Pro Tools, and we have a library of canned effects and a location recorder. One of the spaces we lease in the building is DEC's old in-house television studio, and it's nice and quiet so we can do some recording in there. The music is mostly orchestral, so we have a PC running GigaStudio with the Vienna Symphonic Library. The live tracks—percussion, flute and a vocalist—we recorded with Futura Productions, which is in the Sonic Temple, a classical studio in Boston built in an old Masonic temple.

“We outsourced the dialog to a studio in Santa Monica [Calif.] because our publisher has a relationship with a casting director out there,” he continues. “A publisher can bring a lot of that sort of thing to the table: Besides marketing and distribution, they can sometimes provide you with contractors for things like dialog casting or help establish relationships with third parties for licensing agreements. Using the casting director freed up a lot of my time so I could focus on other things.”

Each version of the game has close to two hours of music and uses up to 2,000 sound effects, from footsteps to monster growls. “There isn't a single sound in the game that we pulled directly out of the library,” Verrette says. “Everything's layered up in Pro Tools. And the game itself does additional processing.”

One other similarity to traditional sound design is the way a designer decides to use certain kinds of loops. “In a racing game,” Verrette explains, “the engine sound is looped and it changes pitch as the rpms go up. But how do you get it to sound realistic when you shift gears? Like sampling a musical instrument, you can only pitch-shift so much, and at a certain point, you have to change the sample. Same with a machine gun sound—you don't want to

—CONTINUED ON PAGE 118



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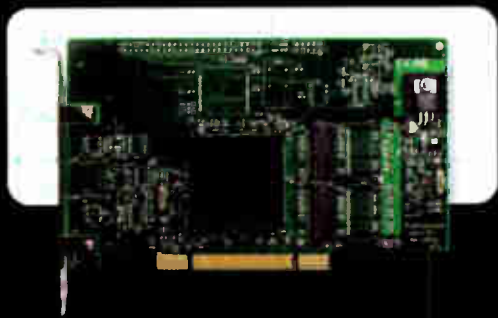


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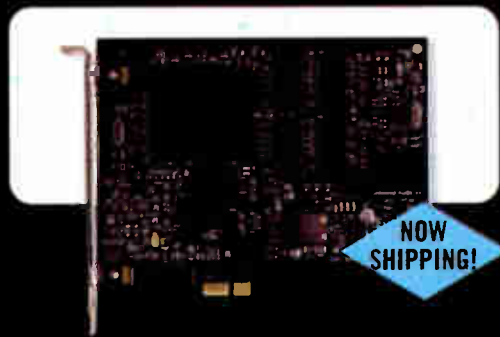
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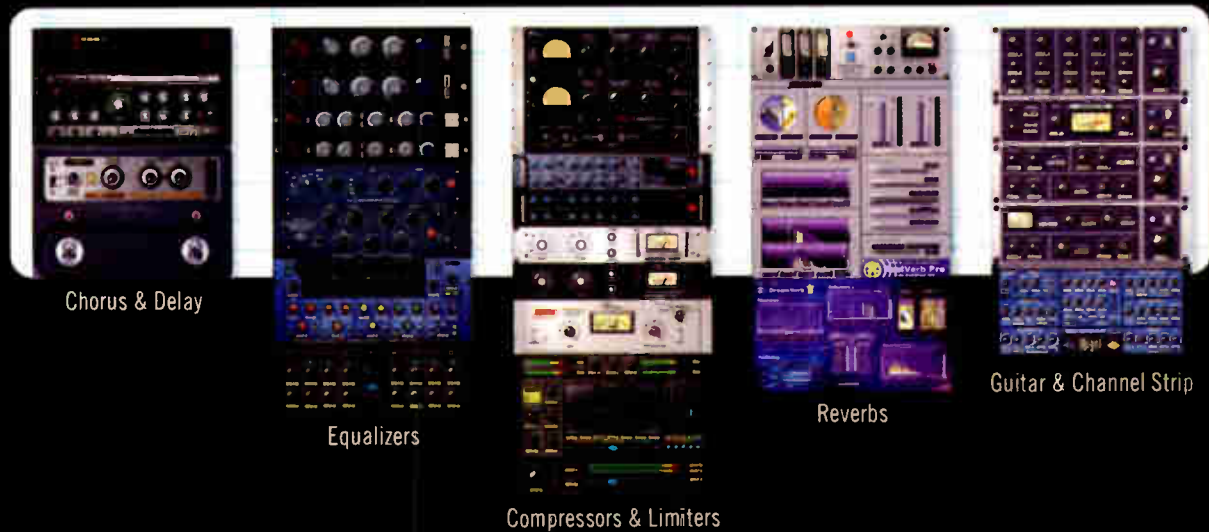
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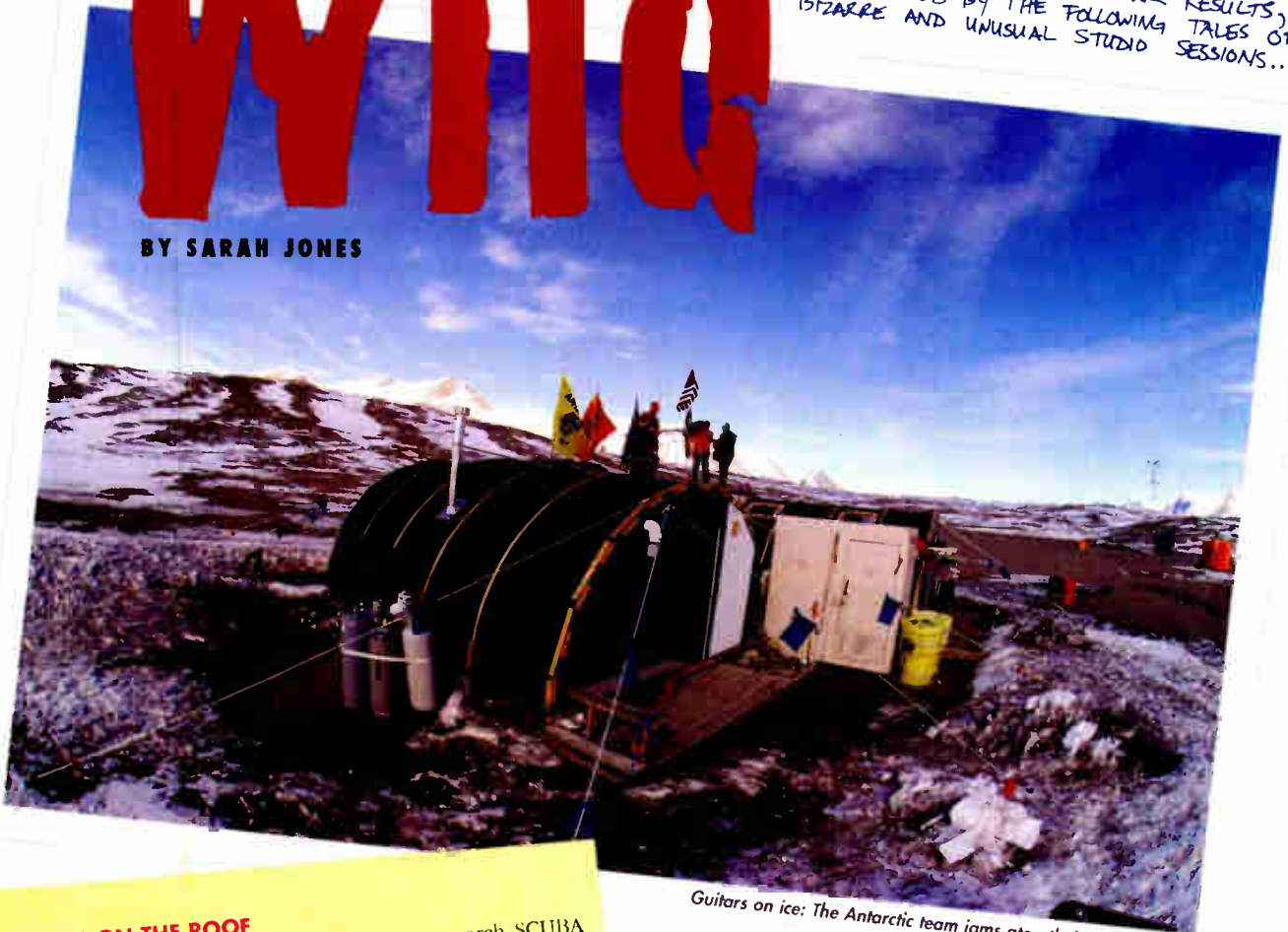
Recording

Wild

BY SARAH JONES

YOU'VE EQ'D A KICK DRUM. TWEAKED VOCALS WITH DELAY. BUT WHAT ABOUT MIKING THE AMP YOU JUST TOSSED INTO THE POOL?

THERE'S CERTAINLY A CASE TO BE MADE FOR TRIED-AND-TRUE RECORDING METHODS. BUT SOMETIMES, GOING OUT ON A LIMB CAN YIELD TRULY SPECTACULAR RESULTS, AS EVIDENCED BY THE FOLLOWING TALES OF BIZARRE AND UNUSUAL STUDIO SESSIONS...



Guitars on ice: The Antarctic team jams atop their research tent.

FIDDLERS ON THE ROOF

Last year was my fourth year working as a research SCUBA diver in the U.S. Antarctic Program. I was also moonlighting as producer, soundtrack composer and underwater cameraman for a new Werner Herzog feature for Discovery Channel International that was filming at the same time down there on the ice. After my science boss, Sam Bowser, made a new scientific discovery about single-celled foraminifera eating larger multicellular creatures, what else was there to do but go up on the roof of our field camp's tent, next to the frozen Ross Sea where our diving takes place, and play loud electric guitars? Werner and his cameraman Peter Zeitlinger naturally had to film this peculiar activity in the clear and frigid Antarctic air. Werner had been using a fancy Cantar recorder to record the sound, but its user interface seemed to be only comprehensible to those whose native language was French, so at this point in the filming, he discarded it and recorded directly to the Blu-ray disk in the fancy new Sony HDV cameras that we were using. The real trick down there, both for recording and for playing, is not to freeze your fingers.

—Henry Kaiser

THE ANTI-MARTHA STEWART

In the pursuit of a gong/cymbal replacement, I turned to my metal patio furniture. The round, roughly 6-foot table-top is fortunately not connected to the legs. It has rounded edges and a hole in the middle for an umbrella. The first challenge was figuring out how to mount it. Lifting it up and shaking it produced a wonderful thunder-sheet effect, but I also wanted to take mallets to it. I found that the large drum tube hardware normally used for tom-toms worked nicely. My crescendo roll produced a deliciously unique "trash gong cymbal" sound with a quick decay. When my young son came in to play, he, of course, opened up my percussion toy box and we discovered that the Japanese bowl resting on top of the café table made a wonderful racket. I just made sure my two small-diaphragm condensers captured every nuance in stereo.

—Tom Zehnder

CAN YOU HEAR ME NOW?

Team Fat was booked to play in the guise of a surf band for the Classic Games Convention. It doesn't really matter that in the Classic Gaming era we dominated the American PC game audio business for, like, five years. Team Fat playing as a surf band is kind of like Buckaroo Banzai's Hong Kong Cavaliers band playing a gig: Nobody knows who the heck we are, nor do they care. "I don't care if you drove through solid rock this morning; in my joint, there'll be no trouble." This is fine with us; we're just goofin' anyway.

But the band that promised us that we could use their equipment spaced and left early with pretty much all of the gear. We talked them into leaving some drum set parts that they kindly trusted us to ship when we were done with 'em. Seth Sternberger (8-Bit Weapon) and I had just met—we ran around the conference looking for things to use as a bass drum. We ended up using his keyboard case. No bass drum means no mount for the toms, so the chairs were used as stands. Also, the keyboard case had to be roped to the chair to keep it from slipping.

The guitars were then plugged into Seth's P.A. I had a POD, which is cool, but Joe had no effects. And as *Mix* readers know, there's nothing less surf-like than a guitar gone straight into the P.A., but there was pretty much nothing we could do about it.

Then Kevin and Dave realized that they had "free weekend minutes," whatever that meant, on their fancy new cell phones. So for a couple of tunes, we had Dave call Kevin, and one assistant held one phone to the P.A. speaker and one held one to the announcements mic. The sound came out the speaker, into one phone, beamed to outer space, bounced off a satellite, came out the other phone, into the mic, fed back into the P.A. and—presto!—space-age echo. It sounded awesome.

—George Sanger (aka The Fat Man)



AXE ABUSE

First, I duct-taped a cheap guitar to a long cable...then I recorded it through a Marshall stack as it bounced down three flights of stairs. Then after it landed, I tightened the strings until they snapped while the thing fed back like crazy.

Now that's a crash-and-burn ending!

—Anthony Resta

GONE OFF THE DEEP END

While producing in Australia, we were doing a song about driving your car into the ocean. It needed a big finish: We sunk a shotgun mic (covered in plastic, of course) into the studio swimming pool and loaded a Marshall combo (thankfully not vintage) on to the diving board. As the guitar player hit the last chord, we bounced the amp into the pool, recording the aquatic barrage and ensuing explosion! I don't think you could do that in the States.

—Jordan Tishler

MICS ON A TRAIN

One of my main clients is the model train company Lionel Trains. We develop unique sound effect systems for Lionel's products. The systems are not simple playback loops, but rather complex simulations of a variety of sound sources (engine sounds, compressors, brakes, whistles, etc.) that can be triggered in various ways in response to the operator's commands. Lionel ships a unique set of sounds with each model, and we always strive to use authentic sound sources for these products.

So it was, when Lionel recently inked a deal with the New York City Transit Authority to produce a model of one of their classic New York City subway trains that I was dispatched to the city to record sounds from a set of vintage subway cars. I grew up in the city, riding the subway to and from school every day, so it was a real treat to be given my own set of Red Birds (which is what this particular type of car was called), along with a conductor and motorman to take out on the BMT West End line in Brooklyn.

We had the center express track on the elevated line all to ourselves, though the D and M trains were still running on the outside local tracks. I ran the train through its paces as I hung out the door on the front with my boom in hand, recording the cacophony of motor sounds, track clatter, brake screeches and other marvelous noises. I even



Ridin' the Red Bird

had them drop me off at an express stop station to do some run-bys and station stops. We had some puzzled subway riders wondering who the heck this guy was that seemed to have his own subway train to play with. I had much fun, got some great sounds in the can and my exploits even landed me on the front page of *The New York Times*.

—Bruce Koball



PHOTO: LENKA CLAYTON

A POLITICAL PICNIC

When George W. Bush came for dinner with Tony Blair to celebrate the first nine months (to the day) of their Iraq war, Nigella Lawson, a UK celebrity chef (and daughter of Margaret Thatcher's economic advisor, Nigel Lawson), cooked a meal for the two leaders and their wives. (The women ate separately.)

Food is about life, nurture, health, family, celebration, nourishment. I

wanted to remind them and us, however, of the death, destruction and violence of their phony, duplicitous and despicable war. So I bought the best ingredients possible and a bottle of wine (French, of course, like theirs, although with just one glass as George doesn't drink). I then re-created their poisonous meal as a picnic and drove over it in a 1969 Sherman tank. I then had an advisor to the UK foreign office bake an apple pie (their chosen dessert) and flew it to America. There, an ex-military intelligence officer who served in Vietnam under Nixon took the pie to Manassas, the site of one of the opening battles in the American Civil War, and with a 1939 Nazi Luger, shot the pie. The results can be heard on "George, Tony, Nigella and Me," the last track on my album *Plat du Jour*. (The CD's artwork is the remains of the pie tin.)

—Matthew Herbert. www.matthewherbert.net

OFFICE EQUIPMENT? STUDIO GEAR!

I once recorded an electric guitar part by locating the player's combo amp in the lounge and placing a mic face down in a dry, empty coffee pot. We were looking for an unusual sound, and we succeeded.

On another day of the same project, I located the guitar player in the studio office with his amp and wearing headphones to hear the cue mix. We called phone line 2 from phone line 1, and using the speakerphone function on the office phone, as well as a phone at reception, we recorded what the office telephone mic picked up by miking the speaker on the reception phone. Of course, there were some sync issues that were "fixed in the mix."—Kent Holmes

SECRET MACHINES

Dielectric drone all-stars session: Five musicians are all individually invited into the studio to record an improv session. They don't know who is coming or what the purpose is. They begin arriving at the studio (a state-of-the-art digital room with a Studer D950 desk and a John Storyk-designed live room) and find a lovely, mood-lit setting featuring an array of microphones and—a toy train layout. The session comprises the musicians performing improvisational drones with the train as one instrument.

Dielectric minimalist all-stars session: Two musicians are contacted and told that they are wanted to come into the studio and record some material that will be used on a minimalist record. They arrive in the studio and set up drums, percussion, piano, stringed instruments, tree branches, stones, sand and leaves. They are told that another musician is in one of the blacked-out iso booths. They begin playing and the star mystery guest begins playing. The star guest? An old, thrift sale-purchased alarm clock miked with a Neumann M149.

—Die Elektrischen

RIGHT PLACE, RIGHT TIME...RIGHT KID

Timeliness is often so much better than fidelity, which is why I always carry a stereo digital voice recorder with me. It really paid off last summer, when the director of an upcoming movie called *American Zombie* asked me to contribute some music. I told my 4-year-old son about the assignment over dinner that night, explaining that the music needed to be scary yet touching, and he started improvising a tender song about zombies on the spot. Grabbing the voice recorder from my pocket, I captured the moment and then e-mailed the audio file to the filmmakers as a joke. They loved it so much they plan to run it over the end credits.

—David Battino, Batmosphere.com

BRICK WALL...DELAY?

Back in the summer of '05, I was working on a King's X recording at Wireworld in Nashville with Michael Wagener. For some reason, we thought it might be interesting to try recording some drums outside in the parking lot, as there was a really cool echo between the studio building and another building on the other side of the parking lot.

I listened to the song, got the feel...took a snare drum and started walking around the parking lot, looking for where the echo would come back to the snare position at about an eighth note. I found the spot, we built the kit...miked the kit, set up a pair of ambience mics at about a 16th note but aimed them back at the kit so the echo off the far building would be in time with

the echo that would end up in the overhead mics.

It was a beautiful summer day in July: The sun was shining, the birds and planes were flying overhead on a regular basis, the dogs were barking, the sheep bleating, it was about 9,000 degrees F with a drummer who probably hadn't seen the sun shine when he was playing in years, if ever. After soaking him down with like 90 gallons of water (internally and, if I remember correctly, externally) we got a performance from him.

I don't think any of us will ever try such silliness again, but it was a pretty damn cool sound...especially for such a hot day. (Note to self: Drummers should be kept at about 68 to 72 degrees F when recording.)

—Fletcher

A "GUITAR CENTER" OF SORTS

I was recording a hard rock band, and one of the tracks was an instrumental piece driven by some really nice, warm, overdriven guitar. The bridge of the piece settled into the lead guitar and a light pad underneath it. It was meant to soften the piece until it exploded back into the main theme. On our first listening, we all agreed that something was missing. Nobody could put his or her finger on exactly what it was, but I decided to give something a shot. I got my hands on every acoustic guitar that was available to me (13 in all, including a Martin Backpacker) and set them up on guitar stands about 10 feet from the overdriven guitar amp, all with their soundholes pointing toward the cone of the amp (forming a semi-circle with a radius of 10 feet). I then placed a lavalier mic inside the soundhole and within the resonating body of each guitar.

I asked the guitarist to play the same bridge part again (it was very melodic and simple, so it wouldn't be hard to match the previous take we used), but this time with the amp jacked up to 11. While tracking, it wasn't exactly clear what was going on, but after he played it, I asked the bandmembers to give me 10 minutes. I called them back in and played the part for them and they loved it. The acoustic guitars had acted as drones, and all of their strings had been vibrating sympathetically along with the notes being played by the guitarist through his amp. I took each of those drones and set the automation to have them moving around within the stereo field so as to give it a sweeping kind of effect. I also used a lowpass filter on each one to cut out the high frequencies and give them a more even sound altogether. The levels weren't too loud and so they just sat between the pad and the guitar. This sweeping, droning effect provided exactly what was needed to fill in what was missing! After that, the guitarist went on to claim to people that he had played 14 guitars at one time, although he could never tell anyone how he did it or else he'd have to kill them.

—Daniel Shatzkes

WACKO INTRO-OUTRO

I had been working on an album destined for a vinyl-only release. The music was taken from two 40-minute-plus improvised jams that were recorded with a single stereo mic setup placed within the large room so as to obtain a natural balance between the instruments. We needed a way to cut the best bits into usable chunks for old-school 22-minute album sides. Of course, the issue then is how can one make interesting intros and outros (something more engaging than simply fading the tracks in and out)?

Because the original recordings had a nice, cohesive, almost "big-band" quality to them, the idea of putting obvious overdubs seemed crass. The music itself, however, was relatively surreal and avant-garde, so it begged for something weirder. I decided to get my intros and outros by copying bits of audio from the beginning and ending of each jam, tweaking it heavily and crossfading the copies with the original tracks. One example was making the end of a track die out by re-recording the ending of a track onto a portable cassette player, then running the tape back using a DC-variable transformer to power the cassette deck. The deck, which has a 6VDC power input, could then be underpowered very precisely, which slowed the tape speed and degraded the response. At about 3 VDC, the deck would conk out. I simply mixed that back with the original signal. Another variation on this theme was blasting the tracks at too high a level through an old boom box to obtain heavy distortion and re-recording by carrying a stereo mic and walking around the front and back of the boom box.

—Rich Wells, *thesupremereality.org*

STEP ASIDE, BLUE MAN GROUP

On a lark, I once recorded a drum kit through a piece of PVC pipe I had laying around the studio. I miked up the kit in the traditional sense, but took an Earthworks TC40K (any skinny mic will work) and duct-taped it to one end of the pipe, the other end pointing directly at the front of the kit from about five feet back. This produced a plastic-y/metallic, swirling pitched effect that was very

interesting and just so happened to work with the track. It was, however, just a bit under pitch, so I shortened the tube with a saw and then re-recorded until I got something I could loop and was pitched perfectly with the key of the song. I took it into Pro Tools and cut a four-bar section with good tempo and made it the bed track for the song that recurred at various points, especially at the intro and outro.

—Kevin Becka



Q: What do you do when an amp is vibrating on the low notes?

A: That's what drummers are for.

—Mauricio Domene

A BIG SETUP

I had built a studio called Mediasound, and we had Mel Brooks come in. This was 1970, and he was very up then for *The Thousand Year Old Man*. It was before *The Producers* or the new things that he's done. So the advertising agency brought him into the studio to do a commercial and I was the engineer. Mel is a very, very unusual person; he's a funny guy. So he came into the control room, the advertising people introduced us and we talked. The microphone was open in the studio and I could hear them because I was going to record them. And then he says, "I don't know..." "What do you mean, Mel?" "I don't know about the engineer." And the ad guy says, "What do you mean, you don't know about the engineer, Mel?" "I don't get good vibes on the engineer." The people asked him, "The engineer owns the place, Mel. He's here to record you. You just met him; and you say you don't get a good feeling about him?" "I think he's on the take." "What do you mean by that?" And then I go down my chart, and I'm ready to go, and I say, "Take one." And he says, "I told you..."

—Harry Hirsch

Keep It in the Stereo Realm

A GUIDE TO PROFESSIONAL 2-CHANNEL MICROPHONES

By Matt Gallagher

Known for their ease of use, precision, versatility and ability to quickly deliver high-quality results, dedicated stereo microphones are sometimes preferable to stereo pairs in recording and live sound applications. Stereo mics provide a point-and-shoot option that is well-suited for many common stereo-miking applications, such as capturing vocals, instruments (including entire drum kits) and live ensembles of varying sizes and configurations. Another advantage of using a single-body stereo mic is consistency, simplifying repeatable setups night after night on the road, or during subsequent studio or location recordings.

Offered by a number of manufacturers in a wide variety of designs and price ranges, professional stereo mics range from sophisticated, high-end models to versions suited for any budget. What's more, manufacturers create products that are optimized to handle one or more specific stereo-miking techniques: coincident schemes such as Blumlein, X/Y and mid-side (M-S; see sidebar on page 32 for more information about M-S miking); near-coincident techniques such as the ORTF (Office de Radiodiffusion Télévision Française) array; and the binaural approach, modeled on human hearing and involving the use of a dummy head with capsules implanted in its "ears."

This article surveys currently available stereo mic models and covers only single-body, dual-capsule designs for the studio. It excludes stereo shotguns, surround mics, multichannel mic arrays and stereo mic "kits" that combine two mics into a stereo package. All of the products mentioned offer balanced outputs with XLR connectors (5-pin or dual 3-pin); unbalanced models with ¼- or ⅜-inch jacks were excluded.

The Audio Engineering Associates (AEA) R88 (\$1,895, www.wesdooley.com) stereo ribbon mic for Blumlein or M-S stereo recording measures 14 inches long and 2.5 inches in diameter, and weighs 3 pounds (less cable). It incorporates the RCA 44's Large Ribbon Geometry configuration for a 20Hz bass response and a smooth high

end for capturing complex tones. It houses a matched pair of figure-8 mics with 2-inch ribbon motors that are oriented at 90 degrees for superior off-axis rejection. The R88 offers a frequency response of 20 to 15k Hz, -52dBV/Pa sensitivity and handles 165dB SPL @ 1 kHz.

Audio-Technica's AT825 (\$549, www.audio-technica.com) accommodates X/Y recording. It comprises two matched, fixed-charge, back-plate condenser elements that are configured side-by-side in a fixed 110-degree angle. The AT825's response is 30 to 20k Hz, with a switchable LF roll-off of 150 Hz (at 6dB/octave). Its signal-to-noise ratio measures 70 dB (1 kHz @ 1 Pa), and it handles 126dB SPL at 1k-ohm (at 1-percent THD). The mic operates on either battery or phantom power, and includes a 16.5-foot shielded cable with a 5-pin XLR at the mic end and two standard 3-pin XLR-M output connectors.



AEA R88

Designed for X/Y recording, Beyerdynamic's MCE 72 (\$489, www.beyerdynamic.com) has two cardioid pattern electret condenser capsules mounted ±60 degrees relative to its axis. The MCE 72 uses 5-pin XLR connections, and is powered by a standard 1.5-volt battery with an LED power indicator. Its response is 60 to 20k Hz, and max SPL at 1 kHz is 123 dB. Also for X/Y recording, the MCE 82 (\$839) has two cardioid condenser capsules mounted ±45 degrees relative to its axis. Response is 50 to 20k Hz, and max SPL at 1 kHz is 128 dB. The MCE 82's elastic suspension system suppresses handling and cable noise, and it offers a switchable bass filter. It can be operated with any 12 to 48VDC phantom power or 1.5V battery, and includes an LED battery-power indicator. The MC 833 (\$3,699) supports M-S, X/Y and mono recording without an additional matrix.

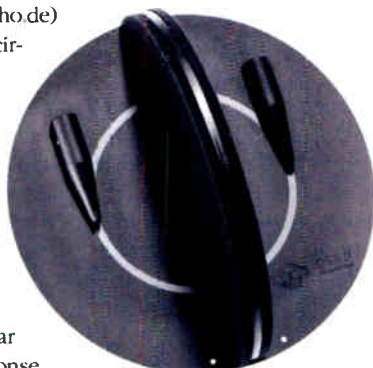


ILLUSTRATION: KAY MARSHALL

It is equipped with three externally polarized cardioid condenser elements. The middle element supplies the mono signal in M-S applications. The condenser elements to the left and right are used for X/Y recording or can be combined to form a figure-8 polar pattern to supply the side signal. The three capsules can be mechanically adjusted and continuously varied over a wide range.

The two Pressure Zone Microphones (PZMs) in Crown's SASS-P MK II (\$1,830, www.crownaudio.com) are aligned in a mono-compatible, near-coincident array, mounted on boundaries with a foam barrier between them to facilitate directional pickup and limit overlap of the two sides at higher frequencies. The polar patterns are omnidirectional at low frequencies and unidirectional at high frequencies. The SASS-P MK II has a 20 to 18k Hz response; signal-to-noise ratio is 73.5 dB @ 94dB SPL. It offers 6mV/Pa sensitivity and handles 150dB SPL @ 3-percent THD. It can be powered by two 9V batteries or 12 to 48VDC phantom. The SASS-P MK II includes a foam-lined carrying case, hand grip, mic stand adapter and windscreen.

The striking design of MBHO's MBNM 622 E PZ (\$545, www.mbho.de) combines a Jecklin Disc—a circular, rubber foam-covered barrier mount for absorbing sound that measures 6x12 inches (HxD)—with two omnidirectional boundary-layer mics mounted on each side of the bisected disc and spaced about 6.5 inches apart. The MBNM 622 offers a hemispherical polar pattern and a frequency response of 10 to 26k Hz (± 1.5 dB); sensi-



MBHO MBNM 622 E PZ

tivity is rated at 5 mV/Pa @ 1 kHz, and max SPL is 130 dB.

Intended for X/Y and M-S applications, the Neumann USM 69 i (\$3,699, www.neumannusa.com) features two separate gold-sputtered, dual-diaphragm capsules that rotate over a 270-degree range. Color markings on the lower-capsule system indicate the angle relative to the upper capsule. Five selectable polar patterns—omni, cardioid, figure-8, hypercardioid and wide-cardioid—are available for each capsule, and the outputs of the two channels can be linked (cascaded) to yield other characteristics. Both mic amplifiers feature high-output capability and low self-noise. The USM 69 i is available in black or nickel finishes, and is sold with IC 6 cable (swivel mount to 5-pin XLR) and AC 20 cable that splits the 5-pin XLR to dual 3-pin XLR outputs.

Neumann's KU 100 (\$4,999) binaural stereo microphone is a replica of the human head with microphone capsules built into the ears. The KU 100 uses transformerless circuitry for achieving high-output capability, fast transient response and low self-noise. Inside the head are switches for -10dB attenuation and the highpass filter (for linear, 40Hz or 150Hz settings). The underside of the unit has balanced (XLR) and unbalanced (BNC) outputs, and a switch for selecting power supply modes. The KU 100 can be operated with 48V phantom power from the provided external AC power supply unit or from its built-in battery. The KU 100 comes in a robust aluminum carrying case that includes a 5-pin XLR cable and the AC-20 adapter cable.

Pearl's TL4 (\$2,267) and TL44 (\$2,513; dist. by Independent Audio, www.independentaudio.com) both combine the company's classic rectangular, dual-membrane capsules mounted back-to-back in a compact black-chrome body. Each offers cardioid, figure-8, omni and 180-degree coincident stereo polar patterns. Both models have 5-pin XLR outputs, weigh 9.1 ounces and use quiet, transformerless preamplifier circuits. Response of both mics is 20 to 20k Hz, with

126dB SPL handling. The TL4's sensitivity is rated at 120 mV/Pa; the TL44's is 16 mV/Pa.

Pearl's DS60 (\$6,241) model supports X/Y, M-S and Blumlein techniques. Its brass body is finished in black chromium and gold-plated mesh, and it has two rectangular dual-membrane capsules mounted one above the other at 90 degrees apart. Each capsule offers a selection of cardioid, figure-8 and omnidirectional patterns. The DS60's response is 18 to 25k Hz. Its preamplifier has four output channels—one for each cardioid membrane—that are connected via a 9-pin Lemo plug and a four-way splitter terminating in 3-pin XLRs. Its sensitivity is rated at 16 mV/Pa with self-noise at 15 dBA.

The RØDE NT4 (\$899, www.rodemic.com) is housed in a heavy-duty, cast-metal body with a satin-nickel finish. Its two half-inch cardioid capsules with gold-sputtered diaphragms offer X/Y miking fixed at a 90-degree angle. The NT4 has a self-noise of 16 dBA and handles 143dB SPLs. Stated response is 20 to 20k Hz, and the mic offers selectable 9V battery or phantom power operation at 12, 24 or 48V and includes an LED power indicator. The NT4 includes a custom carry case, windshield, XLR-to-mini-jack adapter and dual XLR cables.

Offered in matte-black chrome and satin-nickel finishes, Royer Labs' SF-12 (\$2,150, www.royerlabs.com) is housed in an ingot iron case that forms part of the magnetic return circuit. Its two matched 1.8-micron, aluminum-ribbon, figure-8 transducers are placed one above the other, each aimed 45 degrees off-axis from center in the Blumlein configuration. Both capsules can provide mono recording, and two channels can be combined for mono recording without creating phase artifacts. The SF-12's response is 30 to 15k Hz (± 3 dB), and it handles SPL levels up to 130 dB. The SF-12's extension cable comes with a "Y" adapter that splits into two 3-pin male XLR outputs.

Royer's SF-24 (\$3,800) stereo ribbon mic is optimized for Blumlein and M-S configurations, and comes in an optical black finish; 18-karat gold is optional. It shares the SF-12's design characteristics while adding Royer's active



Royer Labs SF-12 in ingot iron case

electronics system, allowing the SF-24 to be used with any preamplifier with average gain characteristics. The SF-24 operates on 48V phantom power and contains two fully balanced, discrete head amplifier systems using specially wound toroidal transformers. Stated response is 40 to 15k Hz (± 2 dB), and max SPL handling is 130 dB. The SF-24's output of -38 dB is 14 dB more sensitive than the non-powered SF-12. Custom-designed FETs provide quiet operation, with self-noise less than 18 dB. The SF-24's output connector is a 5-pin male XLR.

Sanken's (\$2,295, www.sanken-mic.com) CUW-180 handles both stereo and surround applications. Its two cardioid condenser microphones are oriented at 180 degrees and are independently adjustable with a 15-degree detent for X/Y configurations. The precise alignment of both capsules is said to maintain optimum on-axis response and phase coherence. The CUW-180 has a 5-pin XLR output.



Schoeps' CMXY 4Vg has two CCM 4V capsules.

In Schoeps' CMXY 4Vg (\$4,295, www.schoeps.de), the angle between the axes of the two built-in cardioid CCM 4V condenser

Refresher: Mid-Side Recording

Of all stereo-miking techniques, mid-side recording is the most versatile, allowing the greatest degree of control over the stereo image during the mix, while providing total mono compatibility. Although the process may seem complicated at first, it's quite simple. M-S recording is a coincident technique involving two microphones: one in a bidirectional pattern and one typically in cardioid, although other patterns can be used. Here, unlike in straightforward left-right stereo recording, the whole of your soundstage is represented by one forward-facing ("mid") channel and the extreme side information in the other ("side"). The outputs of these two microphones are added and subtracted in a matrix system ($M + S+$ = Left and $M + S-$ = Right; where $S+$ is the output of the bidirectional mic and $S-$ is the phase-inverted bidirectional output) to create a stereo image.

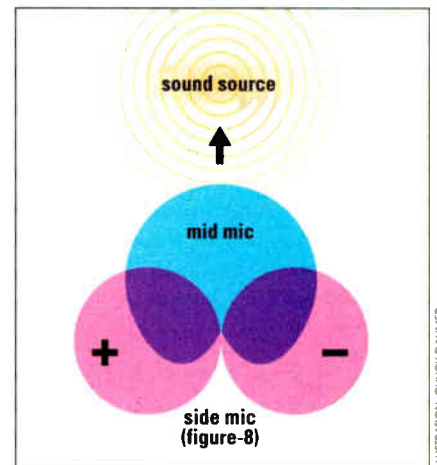


ILLUSTRATION: CHUCK DANKER

To set up an M-S configuration, point your cardioid microphone directly toward the sound source and the bidirectional mic perpendicular (with its diaphragms at 90-degree angles to the source). Place the capsules as close together as possible to align nulls. (Note: Many of the stereo microphones profiled in this article are configurable for M-S.) Record the mid-signal on one channel and side signal to another. Matrixing can be performed via a dedicated decoder unit or manually by routing the mid-output to a single fader, panned to the center; and the side output to two faders, panned hard-left and -right, respectively (with right channel phase-reversed). Sum the mid- and positive side (panned left) to the left bus and the mid- and negative side (panned right) to the right bus; experiment with the width of your stereo image by adjusting mid- and side fader levels, keeping in mind that you can swap your perspective (drummer left/right, for instance) by swapping the phase on the side channels.

—Sarah Jones

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capsules (with lateral pickup patterns) can be adjusted continuously between 0 and 180 degrees without affecting the main stereo axis for precise imaging in an X/Y configuration. The capsules rotate equally and in opposite directions via gear arrangement in the microphone's base. Response is 40 to 20k Hz, with max SPL of 132 dB. The CMXY 4Vg is powered by 12- or 48V phantom power and terminates with a 5-pin XLR-M connector. The package includes Schoeps' AK SU/2U adapter cable (5-pin female XLR to two 3-pin male XLRs).

The spherical design and matte-gray surface finish of Schoeps' KFM 6 (\$6,699) resembles a binaural dummy head and follows similar principles. The KFM 6 records at a fixed angle of 90 degrees and is designed to yield a natural impression of space, depth and image. Two pressure transducers are mounted flush on the surface of the 20cm diameter sphere, acting as an acoustic baffle. The KFM 6's directionality is essentially constant throughout the audio frequency range, which is 18 to 16k Hz. The KFM 6's sensitivity is rated at 100 mV/Pa, its signal-to-noise ratio is 77 dBA and it handles 123dB SPL. It accepts

12- or 48V phantom power, ships with a suspension mount, a KG ball-and-socket joint for stand-mounting, a "Y" adapter cable, 5-pin XLR stereo cables and a wooden case.

The Schoeps KFM 360 (\$5,550) is an 18cm spherical microphone with two CCM 8L figure-8 capsules that record at an angle of 120 degrees for close-miking applications. It also ships with a "Y" adapter cable and mounting accessories, and can be adapted for surround applications with the company's DSP-4 KFM 360 (\$6,305) processor, which has built-in AD/DA converters.

Schoeps' MSTC 64g (\$2,879) is designed for near-coincident ORTF miking. It has a T-shaped body with two built-in mic amplifiers and a matched pair of MK 4 cardioid capsules from the company's Colette Modular System, mounted 17 cm apart at an angle of 110 degrees. The MSTC 64g is powered by 12- or 48V phantom power, its frequency range is 40 to 20k Hz, sensitivity is rated at 13 mV/Pa, signal-to-noise ratio is 78 dBA and max SPL handling is 132 dB. The MSTC 64g terminates in a 5-pin XLR male connector.

The Sennheiser MKE 44P (\$795, www.sennheiserusa.com) is an electret condenser design with two cardioid capsules set at 90 degrees for X/Y applications. Its spring-mounted capsule is designed to suppress handling noise, and it features a two-position LF roll-off filter. The MKE 44P handles max SPL levels of 126 dB (with THD @ 1 percent). It features a 40 to 20k Hz response, and sensitivity is 6.3 mV/Pa (± 2.5 dB). Operation is via 12 to 48V phantom power or 1.5V alkaline battery. Lastly, it has a transformerless output on a 5-pin XLR connector and ships with an adapter cable (comprising one 5-pin female XLR to two 3-pin XLR-M connectors), a velour-foam wind shield and a foam-lined case.

Shure's VP88 (\$1,266 list,



Sennheiser MKE 44P

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www.shure.com) M-S stereo mic combines two condenser capsules: a forward-facing cardioid and a bidirectional side element. An internal M-S matrix offers three selectable degrees of stereo image separation. The internal matrix can be bypassed if an external matrix is used or if stereo imaging is handled in post-production. A switchable LF roll-off (12dB/octave at 80 Hz) is standard, and the mic powers from an internal battery or any 9 to 52VDC phantom source. Frequency response is 40 to 20k Hz, and typical self-noise is 24 dBA. The VP88 package includes a "Y" splitter cable, windscreen, 6V battery and zippered storage bag.

Studio Projects' LSD-2 (\$1,000, www.studioprojectsusa.com) puts two dual-membrane condenser mics within a single housing, allowing for X/Y, M-S and Blumlein techniques. Its 1.06-inch diameter capsules are mounted in close proximity on a vertical axis; the upper-capsule assembly rotates 270 degrees relative to the lower capsule. A single-layer brass mesh surrounds the capsules. Two three-way switches control polar response, highpass filtering and -10dB pad for each capsule. The LSD-2 ships with a dedicated 7-pin XLR to dual 3-pin XLR cable, windscreen, shock-mount and carrying case.



Studio Projects
LSD-2

by Bud Poulin. T.H.E. incorporates its patented preamps and matches the two omni capsules for frequency response and output. The BS-3D is designed to produce excellent phase cohesion for a stereo sound that translates to a stereo or mono mix. Each sphere has a 5-pin male XLR connector, and each mic ships with a 6.5-foot cable (custom lengths are available) with a 5-pin XLR on one end and two 3-pin XLRs on the other.

The Telefunken Ela M 270 (\$15,995, www.telefunkenusa.com) stereo tube condenser microphone is a limited-edition re-creation of the original Telefunken Ela M 270 designed for X/Y,

M-S or Blumlein configurations. The mic features dual 1-inch, gold-sputtered, 6-micron CK12 capsules placed one on top of the other, offering three polar patterns per capsule: cardioid, omni and figure-8. Its frequency range is 20 to 20k Hz. The Ela M 270 is 8.5 inches long and weighs 2 pounds. ■

Matt Gallagher is an assistant editor at Mix.

Telefunken
Ela M 270



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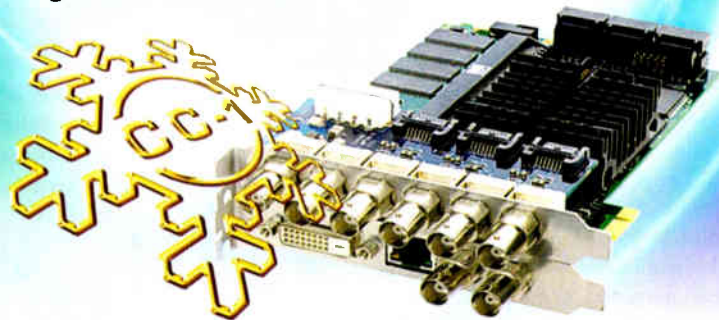
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Mix 'N Match



COMBINING STAGE WEDGES WITH PERSONAL MONITORS

By Steve La Cerra

Mixing monitors is like directing traffic in midtown Manhattan: Everyone wants to go first, no one is heading in the same direction, and nobody wants to listen to the same music. Mixing monitors has never been an easy gig, and it becomes more complicated when wedges are combined with personal monitors. Successfully combining these two approaches requires an engineer with good ears and a solid technical background. To bring you helpful insights for such situations, *Mix* spoke with three monitor engineers and a manufacturer of in-ear monitors, all of whom have effectively merged the technologies.

Most engineers agree that wedges and personal monitors share the same stage

because some musicians are opposed to (or are not confident with) using earpieces, while other players prefer to use personal monitors, although they miss the visceral impact offered by traditional wedges or sidefills.

Marty Garcia is the president of Future Sonics and a pioneer in the use of personal monitors. Garcia observes that many performers "lack knowledge or confidence that such a tiny device can deliver the big sound and feel of an open stage. They have a mindset of getting intelligibility, timing and pitch through the earpieces while getting the energy and feel from the wedges. The number of wedges will determine how well the personal monitors will perform because

the personal monitor system competes with them. I suggest starting *without* the wedges and creating a mix during soundcheck with proper gain structure for the earpieces, as if you were in a studio recording situation. If the first thing a performer hears is a clipped kick drum, then they are put off to the whole idea immediately. If you can create a polished mix *before* your performers come in, they'll have a positive reaction. Once you accomplish that, the need to add a lot of audio in the wedges decreases quite a bit."

When combining personal monitors with wedges, Garcia recommends adding low-frequency audio to the wedges. "A very successful technique is to add low-

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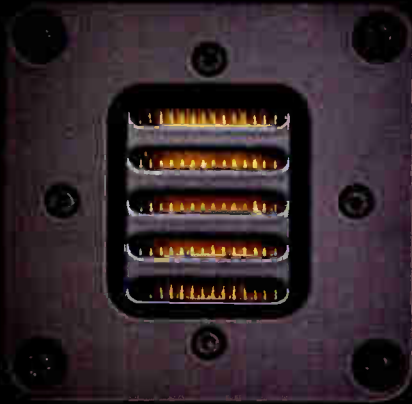
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frequency information to fill out the bass, kick, [sometimes] snare and lower range of the vocal," he says. "That can give the performer the energy and feel they desire. If the earpiece has a wide dynamic range, especially in the low frequencies, and a tight fit, then the performer will actually get a lot of energy from the ear mix. That's why we use a dynamic driver in our Future Sonics Ear Monitors® brand—it helps deliver the energy the musician wants without the need to crank up the level, which, of course, can result in fatigue. If the dynamic range of the earpiece is limited, then there's a tendency for the performer to want more energy out of the wedges, starting that competitive thing again."



Niall Slevin (center, with U2 engineers Joe O'Herlihy, left, and Ja Ravitch): "A lot of people who have just started using in-ears miss the banter between themselves, the band and the rest of the crew. They feel slightly isolated, so you'll see them take one ear out and use a wedge or two."

IN-EARS FOR YOU, TOO

Niall Slevin is one of three monitor engineers working with U2. Slevin's responsibility is mixing monitors for The Edge, while Robbie Adams handles Bono's mixes and David Skaff takes care of Larry Mullen Jr. and Adam Clayton. Slevin runs a stereo ear mix for The Edge in addition to a pair of wedges. "One reason we have wedges up there," Slevin explains, "is for backup. We haven't had any problems, but in case there's an RF issue, I have a band mix ready to go for the stage monitors."

"Usually, The Edge just gets a bit of kick and snare from the wedges. We have a pair of subs underneath the stage to give him subharmonic information he can feel. A lot of people who have just started using in-ears miss the banter between themselves, the band and the rest of the crew. They feel slightly isolated, so you'll see them take one ear out and use a wedge or two. It gives them the ability to key off one earpiece [the vocal] without feeling so isolated. The problem is that the level you supply to the ears goes up and you can fatigue the ears

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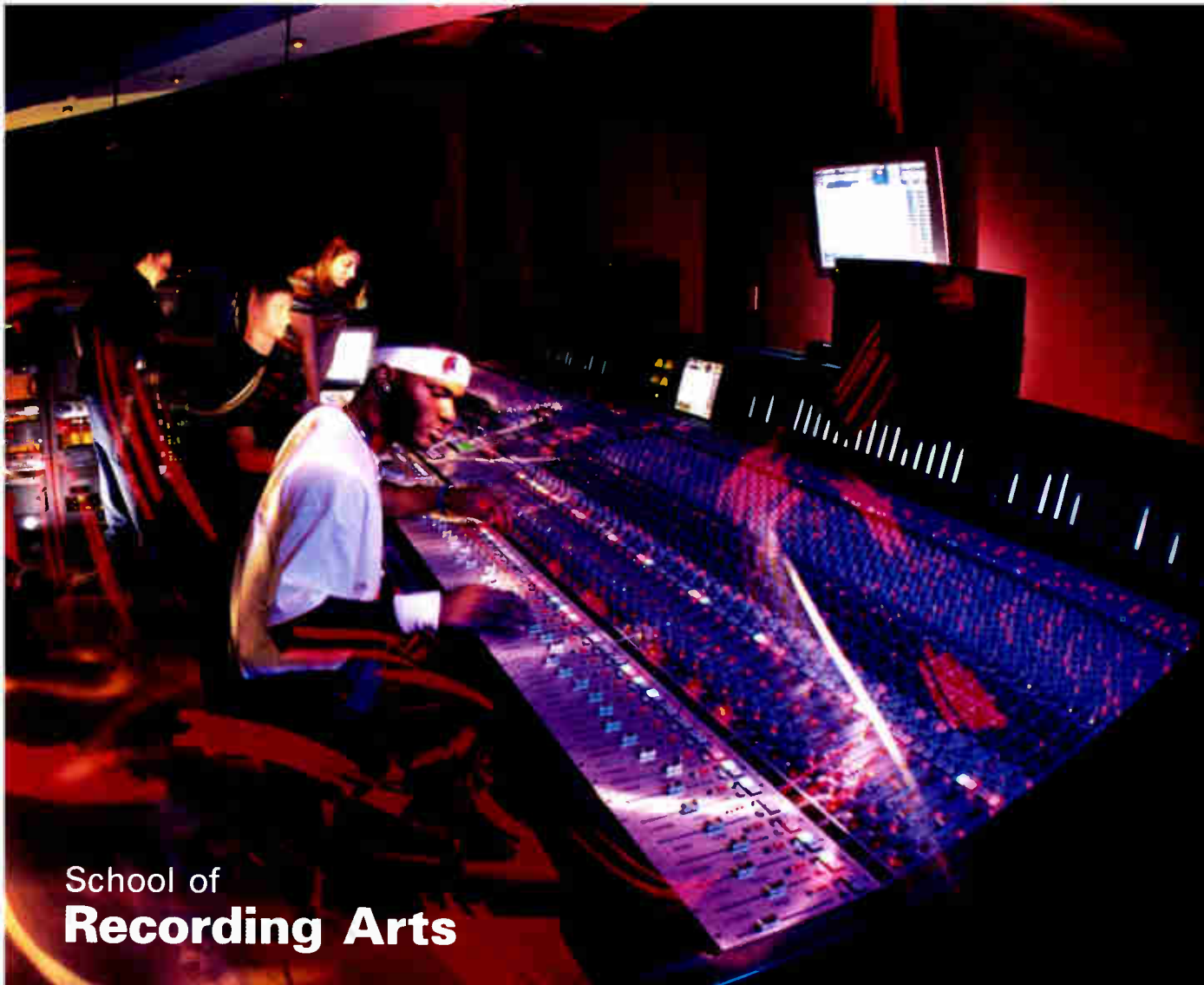
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because the earpiece is battling against the SPL of the wedge."

However, this is not the case with The Edge, according to Slevin. "I use a separate aux send on the monitor console to feed a bit of bass guitar and kick into the subs. I can reduce the level of bass guitar in his in-ears and he'll feel the rest of the information from the subs. They fill out his ear mix. It took quite a bit of EQ'ing to make it sound natural because the subs are underneath the deck, but once we got there, it helped bring down the overall level of kick and bass guitar in his ear mix.

"I also found that I could lower the snare drum quite a bit simply by panning the top snare mic away from the bottom snare mic," Slevin continues. "It gave the snare quite a bit more definition, and bringing these levels down helps reduce fatigue over a two-hour show."

The Edge wears two earpieces, so to deal with any "over-isolation" issues, Slevin places six ambient mics across the front of the stage and points a couple of those back toward the band to get a bit of guitar and drums. "Bleeding that into his mix provides a more normal stage sound," notes Slevin. "I might move them around a bit during



Sean Quackenbush: "We've been able to reduce the stage volume due to the clarity we get from this combination of mixes, especially when we have good microphones."

soundcheck depending on how dry or live the room is, but usually they aim toward the guitars and are not very loud in the in-ears. I EQ them for a bit of presence and [add] a lot of highpass as a kind of 'pastel shade' on the backdrop. There's no use putting anything into an earpiece that you don't need. He couldn't play with just those mics, but they certainly smooth the guitars a bit. Since he changes guitar sounds on quite a few songs, it makes the transitions more natural."

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Sean Quackenbush has been working with Robert Randolph & The Family Band for approximately four years and is now assisted by Brian Lang on monitors. At one point, Quackenbush had 18 wedge mixes that he would set at soundcheck and then run out to front of house to mix the show. "[Bandmembers] started wearing one earpiece but weren't willing to give up wedges, so it was always a fight," Quackenbush explains. "You'd turn the ear up and then the wedge all night. One got louder than the other until they were as loud as could be and drowned each other out. We learned to not put too much of anything into one monitor."

Randolph uses two wedge mixes and one ear mix. The wedges sit next to each other on Randolph's right and he uses a Sensaphonics earpiece in his left ear. One wedge provides lead and backing vocals, while the other provides a band mix. "We get a lot of clarity because we're not trying to cram everything through a 12-inch speaker and a 2-inch diaphragm," says Quackenbush. "We use the ear mix for his vocal, maybe a bit of backing vocals and his own guitar. I give him some reverb—a short plate—on his voice for a bit of space. We've been able to reduce the



PHOTO: STEVE JENNINGS

Neil Heal: "...the earpieces supply the detail, and the wedges and sidefills provide the feel and more of the low-frequency content."

stage volume due to the clarity we get from this combination of mixes, especially when we have good microphones.

"On Robert's guitar," Quackenbush continues, "we use a Sennheiser e609 and a Neumann TLM103. We tend to put the e609 in the wedges [and then apply a highpass

filter] around 120 Hz—there's not much happening below that—then EQ them separately to get the nice high end and warm lows from the TLM103, plus the warm mid from the e609. We'll use the e609 in the wedges and either the condenser or a combination in the ears to get the full guitar sound Robert hears when he listens to his amplifier."

Randolph's vocal mic is split to two channels, providing separate EQ for the wedges and the earpiece. "We can use a higher highpass frequency and also EQ the top end down a bit in the wedge to get it at a level Robert likes," Quackenbush explains. "We use a separate reverb send and run the highpass a bit lower for the ear mix without affecting the wedge. It also allows us to do other things, like putting a tube compressor on the vocal and really squashing it down in the ears to keep it level, even to a whisper. If you try that with a wedge, you're asking for trouble."

"We have played around with ambient mics, but they have an extremely loud stage volume and get a lot of bleed back through the vocal mics," he continues. "Since the vocal mics are loud in their mixes, they get plenty of ambience. Some-

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times, I'll put up a pair of Sennheiser condenser mics that go to the monitor desk for recording, but Randolph hasn't yet had the chance to play with an open canal that lets ambient information into the earpiece. Now he is producing earpieces with tiny microphones that pick up ambient sound. Those mics can be added into the ear mix, and each bandmember can control the amount of ambient sound they hear. The nice part is that when you turn your head, the image follows your ear, so it's almost like not having your ears sealed. If you use audience mics—no matter where you walk or in what direction you turn—you always hear the audience the same. These mics turn with you when you move your head. It's a very interesting concept."

Neil Heal mixes monitors for The Raconteurs using a variety of wedge mixes and ear mixes. "For [bassist] Jack Lawrence, the ears [Ultimate Ears UE-7 Pro] are mainly to protect his hearing," says Heal. "The onstage SPL is between 125 and 130 dB. With earpieces, he can hear what he needs without resorting to excessive wedge volumes. The mix for the ears is similar to his wedge mix, and any additions are usually cymbals and audience mics. In this configuration, the earpieces supply the detail, and the wedges and sidefills provide the feel and more of the low-frequency content. The sidefills also help in terms of adding pan-type effects. For example, if you have two guitar amps with a tremolo pedal that pans between the amps, you can send one amp to the wedge mix and the other amp to the nearest sidefill. This adds a nice sense of stereo to the player's mix, and sometimes you can enhance this by reversing the phase of one signal.

"My approach to mixing monitors really hasn't changed much although I do have to consider RF with ears," Heal continues. "My stage is always as clean and free as possible from any buzzes or hums, and I make sure my ears are, too."

Ultimately, Heal feels his job is to remain fairly invisible so the artist doesn't even think about him being there. "I am there to provide them with what they need to hear to play a great show. They know I am watching intently for cues if needed, but I know when a particular part should be louder in a certain mix. I very rarely get asked for anything during a performance. It's all about having a good relationship with the artist, understanding their likes and dislikes, and providing accordingly." ■



Steve La Cerra is Mix's sound reinforcement editor.

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Ozomatli is a celebration waiting to happen—a fiery brew of jazz-funk, Latin salsa and urban hip hop. Basic tracks for the band's upcoming album, *Don't Mess With the Dragon*, were recorded in Ocean Way Recording's (Los Angeles) Studio B with engineer Robert Carranza and KC Porter, who wrote and co-produced with the band. Porter explains, "We tracked drums in the big room to have more space and flexibility, more options and to use different drum kits." The album was completed at Porter's private studio, Worldbeat Recording, in the Santa Monica Mountains, and then mixed by Serban Ghenea in Virginia. The Concord Records project is slated for release next month.



The band takes a break in Ocean Way Recording Studio B. L-R, rear: Sebastian Jacome, assistant producer; Ulises Bella, tenor sax, clarinet, vocals; Robert Carranza, engineer; Mario Calire, drums; KC Porter, producer; Justin Porée, percussion, MC, vocals; Scott Gutierrez, assistant engineer. Foreground, L-R: Scott Moore, assistant engineer; Wil-Dog Abers, bass, vocals; Jiro Yamaguchi, percussion; Asdrubal Sierra, trumpet, lead vocals.



From left: percussionist Jiro Yamaguchi, engineer Robert Carranza, bassist/vocalist Wil-Dog Abers and assistant producer Sebastian Jacome at Worldbeat Recording's Euphonix CS-2000



Producer KC Porter was named Latin Grammy Producer of the Year in 2001. His credits include projects with Ricky Martin, Selena, Carlos Santana, Bon Jovi and Chaka Khan, as well as Ozomatli.

"The first thing I did with Ozo was for Carlos Santana's Shaman album, the follow-up to *Supernatural*. The song was 'One of These Days,'" Porter says. "It wasn't a full-on Ozo production, but it was an Afro-pop sort of song that Carlos really dug, so we brought in Ozo to do the horns and vocals. It was a great introduction to their whole vibe. Since then, I've discovered that working on their albums is a real immersion into their lifestyle. And I believe that the more time you get to spend with artists, the better you can really understand what works best."



A multi-talented engineer and mixer, Robert Carranza is widely known and respected for his work with such artists as Los Lobos, Ozomatli, Jack Johnson, Beck, Eels, Molotov and Supergrass. To record Jiro Yamaguchi's drum, Carranza adjusts a Neumann U47, which goes through a Chandler Limited TG Channel MkII preamp.



"When I am playing at my very best," says Ulises Bella, "I am in 'the zone,' which means a complete loss of reality, time, space and a sense of self."

"For most of the horns, I use a Neumann U47 going into a nice Neve preamp with no compression," remarks Carranza. "A lot of recordings made these days are compressed to the point where there just isn't any life left in the sound. With this band, we like to keep as much of the full dynamic range as possible. Because of the digital headroom we have today, I like to go straight from the instrument through the simplest signal path and then straight into Pro Tools."

KC Poster adds, "Where we are with Pro Tools now, it's definitely the way to go. We have a Pro Tools Accel HD3 with the ProControl surface."



"If I didn't play guitar with Ozo," says Raul Pacheco, "I would probably be in Chiapas, Mexico, wearing a ski mask fighting on the Zapatista side." Pacheco's Les Paul has a Shure SM7 on the guitar amp, straight into a Neve preamp.



"The message of Ozomatli," says lead singer and trumpeter Asdrubal Sierra, "is to show people an alternative to violence, cruelty and acts of ignorance...to show our listeners awareness to acts of inhumanities in this world, and to dance and celebrate the good in life at our shows."

Sierra sings into a Soundelux ELUX 251 microphone. "This mic has a nice extended top end," says Carranza. "Over time, the older vintage mics tend to lose some of that. The new ELUX gives you nice body, yet you also get the detail up on top. Asdrubal's voice really narrows down when he sings. His voice peaks out in the upper-mids, and every mic we tried exaggerated that. We tried about 10 mics on him, but this ELUX is the one that works for him."



Justin Porée's percussion playing is captured by one stereo AKG C-24. "Timbale is a weird instrument to record," explains Carranza, "because there is so much tone coming from both the bottom head and top head. Miking them both never sounds correct. For Justin, I just put a stereo mic in front of him and capture what is happening in the tone of the room. When I stand in front of him, that is what the timbale sounds like. That gives me the right picture."

Butch Walker

Balancing Between a Solo Career and Getting Behind the Board

Butch Walker has a hard time standing still. It's not a medical thing; it's a demand issue. The singer/songwriter/producer/engineer is jumping between gigs with Avril Lavigne (*Under My Skin*, et al), Pink (*I'm Not Dead*), The Donnas (*Gold Medal*), Sevendust (*Seasons*), Bowling for Soup (several albums), Supernova (*Rock Star*) and The Bronx (*Bronx*) while writing his own music—his latest, *The Rise and Fall of Butch Walker and the Let's-Go-Out Tonites*, was released in the summer of 2006—and touring.

When *Mix* caught up with him, Walker was walking down the busy (and loud) streets of Boston before heading into soundcheck at the nightclub Axis. Walker is not a new kid on the block. Rather, his first dive into the spotlight came in the early '90s with a handful of bands that included Southgang and Marvelous 3. His success continued with a run of solo albums. His pop-inflected brand of rock music influences the work that he does with each act, but never overrides the band's natural sound.

How is life as a multi-hyphenate?

There are too many hyphens to be involved with and I'm trying to figure it out. It's good, though; I like it. It's a good problem to have.

Is it difficult to balance?

Not really, because when I was off the road, which was rare through the '90s, I was always in the studio. I just didn't have any desire to sit around and play videogames, [although] I

played this videogame called "Pro Tools" that could be hazardous to your career if you lose. I was recording and it was just something that I did. It was a good balance for the ego and for [returning to] sanity [after] touring.

How busy are you these days? Are you taking gigs and working on them while on the road?

I have been turning down more work than I have ever

turned down. That's a good problem to have. One thing about being on tour and being able to make my own records and do my day job, which is producing records, is that I can afford to do whatever I want.

Have you found yourself in the midst of a production gig being inspired to go back and work on one of your own songs?



Rarely do I do a genre of music with someone in the studio that is what I do for myself. So it's not so much that as maybe just picking up on people's little tricks, because everybody is different and everybody has a different sense of work ethic and routine. Instead of always making everybody do things the way I do them in the studio, it is nice to be an open book a little bit, and just say, "I'm going to watch you guys for a couple of days and see how you work." That way, I can pick up on some cool stuff.

At the same time, you're pretty active in shaping songs for artists. You did that for The Donnas record, right?

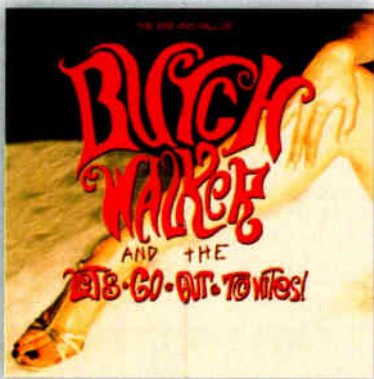
Yeah, we went in very heavy-handed on the front end of pre-production to make sure that everything was cool and everything was the best that it could be song-wise, instead of always just pressing Record. That is never fun. It is nice to be able to get in on the front end with somebody if they are willing to deconstruct their songs.

Is that common?

It is not always common. It is very much a struggle to work with bands a lot of times because bands are especially bad about being protective and wanting to keep everything the way that they saw it the minute they wrote it, and being attached to it and too close to it. That doesn't open you up to making things better, and a lot of bands are generally closed-minded.

A wide variety of musical genres pop up on your credit list, but every band has a hint of melody. Do you add that or is that inherent in the bands that you pick?

I am always a sucker for that. It's my specialty and some-



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thing that I've always had my head wrapped around better than coming in and saying, "I'm going to do a hip hop record!" That's probably not a good idea for me. I mean, I *could* and I'm not above the challenge, but I don't feel like I can really help somebody in that world as much as I can doing a record with somebody who is based a lot around melody.

You added melody to Sevendust, a band that's better known for having a metal edge. Was it hard to push them toward that vibe?

Not really; they wanted it. Lajon [Witherspoon] is a really great singer and he hasn't always had someone in the studio to help him reach his full potential. I think he sang in a very closed box a lot on previous records. I felt like he wasn't really giving it what he could always do. That bugs me when I hear a singer who is a badass, but they are just not wrapping [his voice] around the ultimate melody.

Was he pretty receptive?

Absolutely. I did the demo that got them signed way back in the day. I think they just trusted me.

The trust that you build with an artist is such a huge thing. Is that something that

I think half of my learning the craft was in spite of people that I worked with that were just terrible with people. Then working with some guys that were so great taught me how to make an artist feel comfortable and how to make *me* feel comfortable.

you do when you walk through the door or is that something that you build over time?

I think you build it over time. Obviously, when people call and want to work with me it is because they know what they are getting themselves into with me. I'm an art-

ist, first and foremost, so I'm not like this producer guy that is not going to be able to relate to them whatsoever because they have been so out of touch with the scene for so long. I'm right in the middle of it. I put records out every year that are my own thing, and I have my own cult following and fan base for it. So I think a lot of the [work I get] is because we are usually mutual fans of each other's work.

You told me for a Mix story about The Donna's Gold Medal record [in the January 2005 issue] that they picked you because you know how to shop.

I'm out shopping with my bass player right now. [Laughs] I guess more than anything it's about being able to relate to people. I've known a lot of producers that just have no social skills because they spend too much time looking at a computer screen and not getting out into the real world. They come off as very cold and introverted, and socially inept with a lot of artists. I'm not dogging anybody else; I have learned from plenty of producers how to be and how not to be.

There are some amazing people out there that are basically psychiatrists; they get in there and manipulate you to do the best you can do and make you feel as



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comfortable as possible. Some of them are just terrible at it because they have no social skills and they make the band feel so inferior and insecure that it's a nightmare. A lot of [those producers] are frustrated musicians and, I hate to say that because it sounds very catty, but I think a lot of it comes from that. They are bitter that they are not making records for themselves anymore and not being artists anymore. [They] lose the ability to make a kid, who is coming in for his first record, feel special and feel good about doing it, instead of feeling belittled and bad because they take 15 takes to get the guitar

solo right. It could be the last record that an artist is going to make when they are making their debut record, before it is back to the coffee shop for them, so you might as well make it a fun experience for them.

Have you had that experience?

Absolutely. I think half of my learning the craft was in spite of people that I worked with that were just terrible with people. Then working with some guys that were so great taught me how to make an artist feel comfortable and how to make *me* feel comfortable.

So you jumped in the producer's chair for

the first time back when you were leading the *Marvelous 3* charge?

That's because I couldn't afford a producer. [Laughs] I learned everything in the studio over the years, starting with a 4-track cassette recorder when I was 15. I was always doing my bands' demos and then I did other bands' demos. I had a reel-to-reel, and then I got my first Pro Tools rig when I scraped together all the money I had and did it when I was with *Marvelous 3*. We didn't have any money or a record deal, so I had to do it myself. That record got me more production opportunities than any record I've ever done.

Funny how that is, huh?

It is very serendipitous how it came back around to be this guidebook on how to make rock records for other artists.

Were you automatically comfortable assuming those responsibilities?

Definitely. The other thing is that I had already had experience making records on the other side of the fence being the artist with other producers, so it was easy for me to get in with people. It wasn't like I had to learn how to do it; it just came naturally. I had always been the button-pusher, so to be speak, for my group. It just made it a lot easier to get in there and take control, and be a leader and organize and make shit happen.

On your latest record, the band gets a co-production credit. Were you looking for more of a collaborative thing this time around?

Pretty much on my last few records, I did most of it myself. I had my friend Jim Ebert work with me on the first two solo records just because he is like an extension of myself, and it was easier than me having to run back and forth hitting the Record button. On the new record, I co-produced with my band because they were an integral part of the sound of the songs and shaping the arrangements. I'm used to playing almost 80 percent of everything on the record, but this time I let go and am just singing, playing some bass and some piano.

How important is it to have a trusted engineer when you are going to produce your own music?

I have a couple of guys I work with all the time. On the East Coast, Russ T. Cobb does a lot of stuff for me, and on the West Coast, I've been working with my friend Karl Egsieker. He is also from Atlanta and we have worked together before. Working with both of those guys on records has made the process a lot easier. I'm pretty much a backseat driver and a control freak, and I'm really good and really fast on Pro Tools, so it's frustrating working with someone who is too slow and can't keep up with my pace. I work very fast in the studio. These guys

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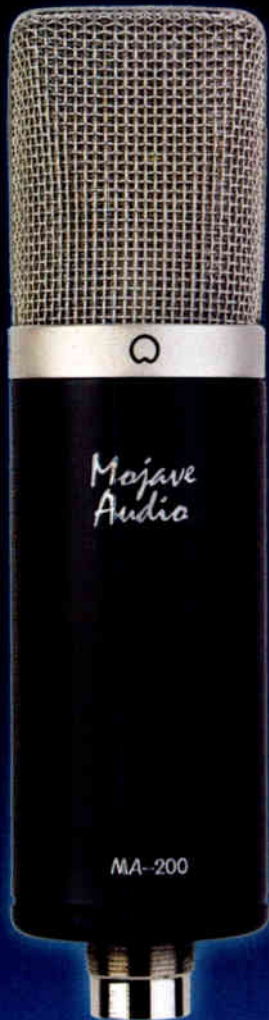
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PRODUCER'S DESK

are always trying to predict my next move, which is good; it makes it easier.

What is your take on using Pro Tools and the assorted plug-ins that make things easier in the studio?

I think that if you have to make a record on a limited budget and on limited time, which seems to be unfortunately the way the industry has cycled [now], then those things can be your friend. A lot of times it is your enemy—it sterilizes and makes records boring, dull and plain-sounding. Unfortunately, radio is weaned now on a certain sound, and that sound is perfectly tuned vocals, perfectly quantized drums. It is not as rough and rugged as it once was, and if it is, it's a rarity. I've used [Antares'] Auto-Tune to take a vocal and correct a pitch that was so bad that it just made everybody's head turn, but the performance was so flawless that we didn't want to re-sing it, and that's okay. [But] turning it on and leaving it on, like some of these bad pop/punk records I hear on the radio—and I can hear the glitch, I can smell it—it kind of makes me mad.

Another problem is that bands these days don't have drummers that can come in and play in the studio and knock out drums in a matter of a couple of days, when sometimes that's all the budget and time will allow you. That is why on like 80 percent of the rock records out there, the [bands'] drummers aren't playing on the records. I hate saying that because it makes me sad. It sucks that labels aren't signing bands with quality musicians anymore; they are signing them because they are 12 and good-looking. Then [the bands] want to make [Radiohead's] *Kid A* and they are nowhere near the [talent level] that a 35-year-old Thom Yorke was at to make that record. Their ambitions and dreams are way bigger than their abilities and the label only wants hits, so it's a struggle.

I love the fact that most of the indie rock kids wanted all their records to sound like The Strokes because they thought they did that on tape and it was all warm-sounding and old-school-sounding. Then [The Strokes] were like, "No, we recorded the whole album in a computer." I think that's funny because it is all perception. I've had A&R guys say, "Oh yeah, man, did you record this on 2-inch tape?" I'll flat-out lie to them and say, "Oh, yeah!" They'll go, "I can tell—it's really warm."

There is an awkward dumbing down of the industry these days.

Oh, yes. Also, the title "A&R" has diminished—it doesn't really make any sense anymore. They need to change the title to stand for Alcohol and Restaurants, because usually what they are good for is taking

care of the tab. When they call me up [after] they get a rough mix of something and it is obviously a rough mix, but they complain about the level of the snare drum, they really don't have much to say about the band. It is amazing that they will actually do that. I don't need any more A&R guys calling me up and telling me to "IQ" the snare drum.

Amazing.

But I want everybody to know that I think there is a light at the end of the tunnel. I'm not being negative; I think this is a great revolution for music right now. This is the perfect time and the perfect opportunity for artists to take back control of how they make records and what they do to make them, because labels aren't really doing shit anymore.

You've kind of bounced between gigs lately. The Bronx is a hard, fast and sloppy rock band.

Yeah, I love them.

So is it sort of like an aperitif to go work with them before you hop into the studio with a Pink or an Avril Lavigne?

It is great. That's just it—I don't ever want to be pigeonholed into one place because I grew up on all kinds of music. Michael Beinhorn—who actually produced the new Bronx record, which is amazing—wanted me to come in and do co-production on one of the songs and get my vibe on it. I thought that was really cool because Michael Beinhorn is one of the biggest, most well-respected producers out there, and I thought that was really cool that he wasn't intimidated by some dude coming in. It was cool and the band was great, too.

I hope this doesn't sound too much like an obnoxious rock-critic question, but I am curious about your work with Pink and Avril—not so much the pop aspect of it, but I'm curious about how you bring something different to those two artists? The perception may be that they are similar.

I don't think they could be any more different. They come from the same genre, but the way they work in the studio, the way they sing and the way they write is completely different. That's stuff you really don't know about when you get a shiny disc in front of your face at the end of the day and that is all you have.

That being said, I enjoy doing that because it's just as hard to make the big pop hit on the disc as it is to make something that is really artistic and esoteric. I embrace both cultures and both styles. I need that balance in my life, too, so I don't get too narrow-minded about things. ■

David John Farinella is a San Francisco-based writer.



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Echo Mountain Recording

Steve Wilmans Sets Up Shop in Artsy North Carolina Burg

It only takes a few hours hanging out in downtown Asheville, N.C., to realize this small mountain city of 70,000 has become a magnet for thousands of alternative-lifestyle pilgrims, artists, musicians and outdoor enthusiasts. Downtown, Pack Square and Pritchard Park are regular scenes for musicians, performance artists, large drum circles and dancing. The area also boasts a fine symphony, good jazz and world beat. It's no wonder the city's unhurried vibe, beautiful setting and manageable size has lured in so many creative types.

Steve Wilmans, an engineer/mixer with 20 years' experience and a former partner in a Seattle-based studio called Stepping Stone, was one such person. While Stepping Stone was a destination for acts such as Pearl Jam, Soundgarden, Built to Spill, Modest Mouse and Super Deluxe to record—and where tracks by Heart, Peter Frampton and the fictitious band Stillwater were recorded for the movie *Almost Famous*—Wilmans and his partner were made a purchase offer they couldn't refuse by a Microsoft man with deep pockets.

"When I sold the studio, I moved back to Southern California because the constant drizzle of the Pacific Northwest finally wore me down and I needed the sunshine," reflects Wilmans. "I moved to L.A. and took some leisure time traveling to Australia, Bali and Mexico, and surfing and doing the occasional project for a couple of years. Finally, I couldn't take L.A. anymore. A friend of mine was moving here from L.A. because he was tired of it, and on an impulse I helped him drive his Ryder truck and move his stuff here in April of 2003."

Wilmans was turned on to a 6,300-square-foot Methodist church in downtown Asheville that was about to hit the real estate market and immediately connected with the space, with its 20-foot vaulted ceilings, stained-glass window in the sanctuary and the all-important downstairs kitchen. He then enlisted the help of George Augspurger to design Echo Mountain Recording's (www.echomountain.net) control room and main monitor system. After getting all of the necessary permits, they began remodeling in April 2005 with the help of Asheville-based contractor Casey Carmichael of Heritage Restoration. Reid Carlson and Scott Green of Zahner Inc. provided beautiful replication of the original paneling that is featured throughout the church building, as well as the rest of the carpentry.

"As far as gear goes, I wanted to meld old-school and vintage analog with the latest in digital technology," says Wilmans. "I'm an analog guy, but I also realized that Pro Tools is the industry standard." With the help of Steffan and Marc Fantini, as well as Bryan McCurry in Los Angeles, Wilmans began tracking down the vintage gear—from the 32-channel Neve 8068 MkII console to the Studer A800,



Standing, from left: studio owner Steve Wilmans, Shannon Fitzgerald, Danny Kadar, Jeb Puryear (*Donna the Buffalo*).
Seated: Joe Blaney (producer), Bill Reynolds (*Donna the Buffalo*).

to the mic collection that includes a Telefunken Ela M 251, to the guitar amp collection that includes a priceless offset Marshall prototype JTM45 head with matching offset cabinet. "I wanted the place to scream warm analog vibe that matched the feel of the building," Wilmans says. He also brought in John Klett, Jack Kennedy and Dan Zellman to fine-tune the facility's technical aspects.

To appeal to the digital crowd, Wilmans hired Bruce Sales as all-around Pro Tools guru. Though Asheville is Sales' hometown, this Berklee College of Music grad worked for the past 14 years in New York as a multi-instrumentalist, composer, arranger, sound designer, engineer/mixer, graphics designer and Website designer for the powerhouse New York firm David Horowitz Music Associates (DHMA). "I recorded a wide range of instrumentation and mixed for many top-drawer advertising accounts like GE, Mercedes, Pepsi, Visa and USAir," Sales says. He also recorded and mixed a number of short films and albums.

Wilmans also attracted independent producer and now staff engineer Danny Kadar, whose credits include *My Morning Jacket*, Iggy Pop, Trey Anastasio, Chris Whitley, New Birth Brass Band, James Carter and, most recently, Arizona. Jessica Tomasin is studio manager.

Echo Mountain kicked things off with Donna the Buffalo cutting tracks with Joe Blaney producing and engineering. "We had a great time here," enthuses Blaney. "Donna the Buffalo is a band that is most comfortable playing live, and they have had a hard time feeling comfortable playing in some other studios. Here at Echo Mountain, it felt right at home.

"It makes a lot of sense building a studio here," Blaney adds. "Asheville is a beautiful small city with a lot of artists and creative people, and great shops and restaurants and bars, and everything is in walking distance, like a little village, but you are really close to the mountains. For a studio that has just opened, this is really flying well." ■

Rick Clark is Mix's Nashville editor.

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Setting the Bar

16/44 Seems Fine, But Can We Have a Few More Channels?

For those of us who tend to seek the cutting edge, I am about to pull a Bill Gates. Yes, the richest man in the world once looked into the future and said that “640K should be enough for everyone.” Now, my statement won’t be quite as simple as one sentence. Nor will I pretend to know where this is all headed. But we *are* audio junkies, so I’ll try.

In this case, the bar I speak of in the title concerns audio capability in a game engine on PC and current-gen consoles. With regret, I’m leaving out handhelds and mobile devices, but they’ll soon follow. Keep in mind this bar is net, not gross, when it comes to allocation of system resources in both hardware and software.

To break it all down, we’re going to take a look at music playback, DSP resources and, finally, the tools that will take us up to the bar.

Let’s start with taking a hit for the team in the interests of getting more valuable audio capability later. Dynamic range and bit rate will be that hit, though not much of one. If you have 16-bit/44k sound across the board, with or without compression, and the ability to play up to 64 sounds of any size, that’s all you need to start. Why create an entire crowd? An entire flock of birds with individual SFX? Madness! That isn’t what games are about, or films for that matter. Rod Abernethy and Jason Graves, partners at Rednote Audio, recently scored *Star Trek: Legacy*. What do they say to 16/44 across the board with up to 10 stereo music streams at once?

Rod and Jason: Next-gen could mean the death of the dreaded 60-second loop. Imagine music that never repeats itself and changes dynamically with the game, seamlessly moving from one mood to another. We’re not talking about the typical “fade-in, fade-out” transitions, either. This would be one continuous piece of music that immerses the player even further into the game experience.

Ten music streams would provide the means to create true adaptive music—if the developer wants to take the time, energy and budget to implement it.

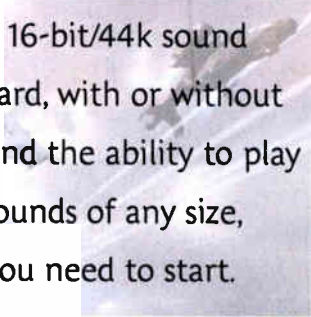
Most music for entertainment is still composed in a linear, beginning-to-end fashion. With the next-gen consoles, composers can write in true vertical fashion, instead of the traditional linear loop. Interrelated stems and variants of themes would be continuously triggered to a specific action in the game, all independent of each other. This means more planning and thought into the architecture of the music, but that’s why composing music for games is so much fun. It’s true multichannel, adaptive, interactive music.

Now, on to manipulation. You must be able to route the 64 channels to any channel at any time, from stereo to 11.1 surround. If an individual sound needs to be routed to a

particular channel in real time in the engine, this should be done using the game’s editor. You should be able to assign reverb and other plug-ins (yes, TDM, VST, DirectX, you name it) to any channel without slowdown and without sacrificing resources to another process.

It doesn’t seem like a lot to ask. So I talked to Brian Schmidt, who runs the Xbox audio group.

Brian Schmidt: First, I have to take some issue with your “bar” of “64 16-bit/44k sounds.” Sixty-four?! That’s so five years ago. A typical next-gen console has more processing power in its multiple CPUs available for audio



If you have 16-bit/44k sound across the board, with or without compression, and the ability to play up to 64 sounds of any size, that’s all you need to start.

than a high-end Pro Tools system did just a couple of years ago. Windows PCs are increasingly multicore systems. These extra CPU cores essentially double—or even quadruple—the amount of CPU power available.

To be fair, on the PC, 64 can still be a nice number to shoot for. However, for consoles, 64 just barely gets you started. Many of the current-gen console games use literally hundreds of concurrent sounds. Looking for a helicopter sound? It’s not nearly enough to simply get a halfway-decent loop of a helicopter sound. You need to use separate waves for the rotors, engine, air, pistons and so on. Similarly, a good crowd sound will have multiple layers; even though something might be considered a single “sound,” under the hood, a good videogame sound may have several (or in some cases, dozens) of concurrent waves playing at any one time.

But you asked me about “manipulation.” We specifically designed the Xbox 360 audio system to facilitate the use of DSP algorithms as an integral part of game audio. DSP usage in games falls into a few basic categories: environmental DSP, effect DSP, inherent DSP and mixing/mastering DSP.

Environmental DSP is used to take an existing sound and manipulate it in some sort of context-dependent way. The purpose is to place the sound within the specific environment where the action is taking place. The prototypical example of this is adding some reverb to a sound when the action is taking place in a large, presumably reverberant en-

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vironment or a more enclosed space. Another example of environmental DSP would be a lowpass filter to mimic the effect of a sound coming from behind a closed door or wall.

Effect DSP is used when an existing sound needs to be processed to achieve some specific, desired effect. For example, a character's dialog may end up as radio communication in the game, so the dialog may need to be processed with DSP to emulate the effect of radio transmission. Performing DSP in real time during the game allows the same dialog to be used for both the "radioized" case and normal, non-radio dialog.

Inherent DSP starts to get interesting, as it uses DSP as part of the sound itself. Now some folks no doubt would ask, "If I know I want to put some DSP on a sound, why wouldn't I just do that ahead of time and save the resultant sound as its own WAV file?" For certain effects, that may be fine. However, for the majority of sounds in a videogame, that kind of DSP is going to depend on the playback. The easy example is a gunshot. If the character can shoot his/her gun in any of a number of different rooms, the gunshot needs to have a number of different reverbs. It's impossible to store multiple versions of every sound (dry, and with each a number of different reverbs). It's far more efficient and flexible to just store the sound "dry" and run the reverb in real time during game-play.

Finally, we're just now starting to see mixing/mastering DSP. These are the DSP to which most linear media people are accustomed—per-sound EQ, dynamic range control, final-stage compression/limiting. Mixing/mastering DSP is probably more important for games than for traditional media due to the unpredictable nature of game audio—at any given moment, it's virtually impossible to predict exactly what the sonic landscape will be. Having control over the mix therefore becomes more important than ever.

Finally, we need tools, a tool set that allows us to set mix groups; adjust volume and plug-in settings; set markers within files; hook files to animations, zones and events; and organize the files as objects that can exist as single or multiple files with all the settings (including good randomization). Want a planar or mesh emitter that can have sounds emanating from an object rather than a point? Go for it. Using beat detection and variable/selectable crossfades combined with event mapping will create just about any kind of adaptive soundtrack you'd want.

Dan Forden and Marty O'Donnell handle

some awfully big franchises—one doesn't sniff at *Halo 3* or the upcoming *Stranglehold*. What tool sets do they use and how do they match up against "the bar"?

Dan Forden: We use the Unreal 3 Engine at Midway and are therefore able to work directly in the game, just as the artists do. This enables us to tightly integrate the audio with the other game-play elements. We can attach sound notifications to any frame of an animation. We use the art in the game to tell us what type of material it is so we know what to play when someone walks on it or blows it up. We can also create sub-mixes to ease the task of mixing. However, one of the best things about this environment is the ease of iteration. Working in the editor is essentially working in the game. Any parameter change to any loaded sound asset is heard immediately. Any game designer will tell you that short iteration time is one of the most critical factors when trying to create a successful game, and the ability to preview changes quickly is equally important to making great game audio. We have also created some home-brew functionality to allow us to organize and iterate on large quantities of character dialog and "non-verbal" voice-over—i.e., pain, effort, death, attacks, etc.

Moving ahead, as we approach the second round of games for this generation of hardware, we need to develop high-level scripting tools to more effectively manage the emotional context of game-play. That is, the ability to take stock of the game's state at a given time and modify the audio accordingly, whether it's changing the music, changing the mix or applying effects. Having control over these elements and being able to modify them in response to game-play mechanisms is what will create truly interactive, immersive and next-generation game audio.

Well, there you have it: 16/44, 128 simultaneous sounds and a tool set that allows audio editors into the objects and animations. Not a lot to ask, right? And don't even get me started about online, which has become a major component of game-play with next-gen. A great deal changes when your design is dependent on actions of multiplayer games, but at this point, your bandwidth is a factor based on streaming capability and that affects audio.

There. Boom. The bar has been set. Now, has anybody bellied up? ■

Alexander Brandon is the audio director for Midway Home Entertainment in San Diego, Calif.

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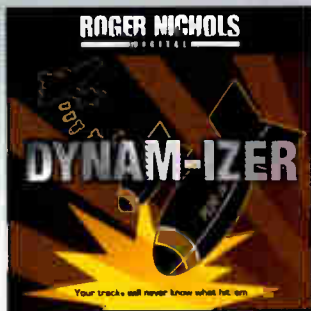
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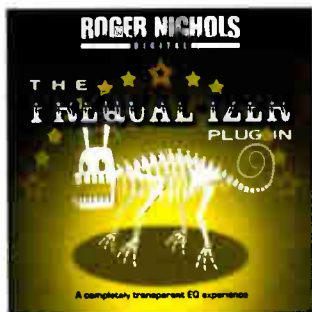
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Freak Out

The Perils and Pitfalls of Low-Budget Audio for an Indie Film

By Glen Yard

Freak Out is a comedy/horror film best described as the bastard offspring of *Weird Science* and any of the *Friday the 13th* films. It's the story of two losers and their pet project: training an escaped mental patient to be a serial killer using everything they've learned from watching an endless stream of crappy horror films. Naturally, things don't go quite as planned, to say the least. The film may not be one of the larger independent breakthrough hits that are annually spawned by Sundance, et. al., but it is a true low-budget triumph that is slowly carving out a cult audience, which is sure to increase now that the film has been released on DVD in the U.S. following a successful UK release.

Freak Out was made with small change—around \$50,000—by a tiny group of committed, first-time filmmakers on the sleepy south coast of England: Christian James (director/camera/editor), Dan Palmer (writer/producer/actor), Ian Chaplain (line producer), James Heathcote (lead actor) and myself, Glen Yard (sound designer). It was shot on 16mm and took three years to complete (2000 to 2003) and

another couple of years to find distribution. Everything about *Freak Out's* production was small-time, but it developed into something big-time, having wowed audiences at global festivals. It was also snapped up by one of the world's leading horror film distributors, Anchor Bay.

When I call myself a sound designer, it's because I was the project's entire sound department from beginning to end—from location recordist to re-recording mixer. Previously, I hadn't worked on any finished film that was longer than 15 minutes, and this was to be more than 90 minutes.

Freak Out was filmed sporadically whenever cash was available to fund it. There was no set-in-stone schedule because it was pointless putting that pressure on ourselves if we didn't have the moolah. We'd raise some money, then film, raise a bit more money, then film a bit more. All involved were juggling various jobs and courses throughout—personally, I was stacking shelves at night, and during the day I studied for a degree in film and animation at a local

art college. At times it seemed unlikely that we'd ever finish the film, let alone that it would be of any worth. However, as time went on and we started to piece scenes together, we knew that the results were good and getting better, and thus silencing all the doubters we would bump into who couldn't believe we were *still* working on that film.

As film was so expensive, we quickly learned how to shoot on the fly, forgoing any form of slate markings. Because I was the entire sound department and James handled camera, direction and editing, we could easily reference anything between us as we knew the film inside out. Later, as the edit began, the audio was synched up by clap alone as we were also working without timecode: No edit decision lists for us! That bit us on the backside a little for the visual side when at the end of all this, the film was given a high-definition transfer and had to be re-edited cut for cut. (The film was originally edited off of miniDV copies of the original Beta tapes. There has never been an actual print of *Freak Out*, even though we went to all the trouble and expense to shoot on film.)

To be fair, I wasn't strictly the original sound man—a couple of college slackers shared duties before I came onboard (entirely at my insistence of there being some quality control). The first one had a habit of disappearing when needed, meaning sound would be recorded by a chair or random passer-by. The second one added a lovely "warmth" to all his audio in the form of a loud, bass-heavy, hissy hum. The same person was also responsible for a good six months of audio, and most of the location recording kit was stolen from his unlocked car in a bad part of town. It all got a bit messy for a while, but lesson learned—you may lose friends while making an independent horror comedy!

The location sound rig I used was a Sennheiser MKH416T shotgun microphone, Samson Mixpad 4 portable compact mixer and a Sony MZ-R37 MiniDisc recorder. We recorded on that format because that's all we could get our



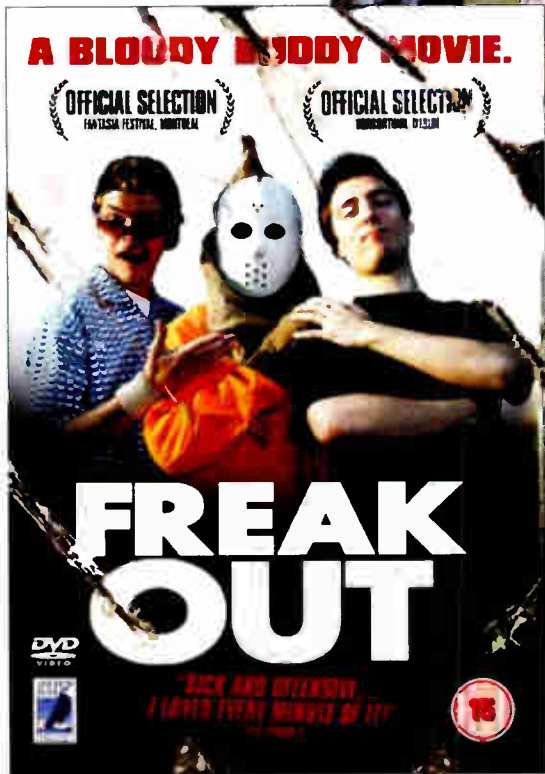
Sound designer Glen Yard: "When I call myself a sound designer, it's because I was the project's entire sound department from beginning to end—from location recordist to re-recording mixer."

hands on for any length of time and because it was nice and user-friendly. I knew the scary stuff about MiniDisc's limiting and compression, but it served me well with good results. I continued to use the same recorder into post-production for continuity.

The Sennheiser was acquired from my college at the time in a state of disrepair, and I was told that if we could get it reconditioned, we could use it for as long as we wanted. I ended up



Behind the scenes of *Freaky* during a rare non-bloody moment



getting so attached to it, I kept it! The 416 was the only microphone we had and we recorded everything with it. With a lack of a proper fish pole, I went through a series of substitutes, including a telescopic golf-ball grabber, a giant

covering the cameraman in duffel coats did the trick. All the money we had—and I mean *all* of it—went to buying and processing film stock. Everything else and everyone's niches were self-funded. I still have a shoe box bulging

screw (because it fit the microphone mount we had left after the theft) that would cut into your hands if you held it for longer than a second and the one that I settled for: a broom handle. During shooting, I decorated it with actors' signatures and motivational buzz words such as "success," "destiny," "Hollywood" and "Give it up and become an accountant!"

The rig was rag-tag but was comparable to our lighting and camera equipment. The camera we used, an ancient Arriflex BL, was noisy at times but the old trick of

with receipts.

Over the course of shooting the film, I was presented with a number of recording environments, including a shopping mall, an abandoned art college, a bowling alley, an elementary school, a theater, a supermarket and a busy street in central London. And although most locations were suburban and uncrowded, it still proved to be tricky to work unobtrusively and to limit interruptions from the general public or business employees. I was always sure to cover myself with wild line recordings directly after shooting to keep any spontaneity intact just in case the dialog had problems or the actors were difficult to get hold of again. I also tried to record most rehearsals, even if just for scraps of Foley. And if there was any down time between setups or waiting for sunshine, I'd take the participating actors to a quiet spot and run through what had just been shot, including separate runs of dialog and movement. Generally, I was my own boom operator, which allowed me to grab bits of Foley and sound effects



From left: Dan Palmer (writer/actor/producer), Yazz Fetto (actor, co-producer) and James Heathcote (actor)

quickly and efficiently without having to confer with anyone and wade through cables. A few times, I managed to record, operate the boom and appear in a shot as an extra—very handy for getting into a better miking position.

For the first time as a sound designer, I got to deal with standard action-movie intrusions, such as smoke and wind machines, live firearms, squibs and a rather large explosion—things I had never experienced through years of tedious, pompous college productions. We were

making a fun film that was fun to film—add to this the various gore gags, decapitations, chainsawing of guts and myself in a grandstanding cameo being sliced in half by a giant supernatural spatula.

Time wore on and eventually all our situations changed. After a couple of years, I was no longer a college student supplementing my education with another project; I was a college graduate working dead-end jobs for very little and working on *Freak Out* for nothing. Looking back, everyone's commitment to such a long-

term project was impressive, but at the time it wasn't even questioned.

Editing began slowly during mid-2002 as final components were shot for some scenes. I wasn't 100-percent sure if I would be needed to help finish the film. I had an opportunity to move away to London to do what everyone else did when they graduated—be a go-fer in television—and at the time I didn't have any form of sound editing equipment readily available. Still, I decided that doing the stuff that I would be doing with *Freak Out's* post-production was what I eventually wanted to do anyway, so why not do it now instead of later and learn as I go.

I had previously worked with Pro Tools at college and knew my way around it, so it seemed the logical step to work with it again so I could hit the ground running. I managed to get myself Pro Tools LE 5.3.1 and the Digi 001 hardware to run on a PC that I bought off of eBay for around \$500, and by Christmas 2002 I had edited my first scene. Working with Pro Tools, I used only the basic Audio Suite tools, and I was limited to working on a single computer screen, so the edit window and the QuickTime movie had to share space.

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Soon after I started, I tested my mixes through a couple of different speakers via DVD. I know the general consensus is that films these days are way too loud and would have greater impact if they were more dynamic, but ever so, I tried to match the roaring Hollywood spectaculars buckling under the weight of their own noisiness. I didn't want to let the film down in the ears of a general public that wants big, in-your-face movie sound. I found that upping the ante sonically all around helped the film's raucous nature, and helps set it apart from other independent films that have perfectly

serviceable sound, but seem unwilling to blow peoples' heads off due to their own constraints. To be honest, at times I completely ignored level meters as long as it sounded good, only backing down if any clipping or distortion was present. At a number of punchy moments I even used distortion to my advantage. This method satisfied me in the short term, as everything sounded lovely and meaty, but in the long term, I worried about a professional's eye seeing what I had done.

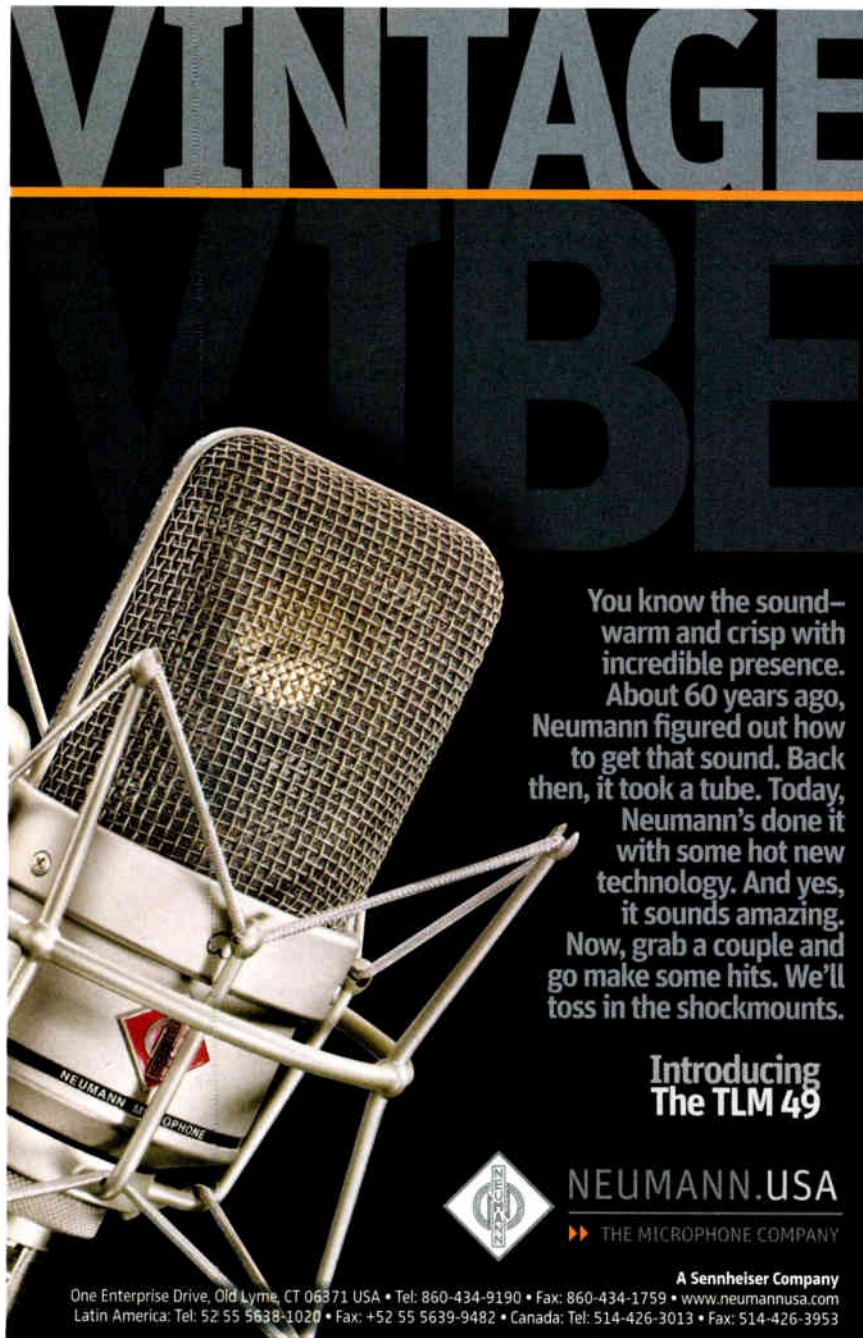
The music for the film, by up-and-coming composer Stuart Fox, was completed late

in the editing process, so prior to this and working without any idea of how the music would play, I tried to give as full an audio picture as possible throughout. My workload was also affected by the fact that around 30 percent of the film had no original sound at all, thanks to sound man number 2. With these scenes, total reconstruction was needed and my Foley work was intensive. Looping these "mute" scenes required eye-fatiguing, lip-reading and some arduous re-recording sessions, as any potential diversions from the script and vocal ticks had been lost forever. During these sessions, once-regular dialog became snatches of sentences endlessly repeated to almost hallucinogenic heights, as we sat rewinding and fast-forwarding raw footage on a 14-inch combination television and video unit that natively sported a foam helmet that I had made for it to stop any unwanted noise.

As I self-produced almost all of the Foley, sound effects and atmospheric effects, I was wary of using any library stuff, thinking it just didn't sound that good; plus, the selection I had on hand was limited. But thanks to *Freak Out*, I now have the beginnings of an extensive personal effects library. Doing this myself meant many late nights stomping around my parents' house while they were asleep and rolling about in the driveway for fight scenes. Living near an airport meant doing this during the day was impractical. I made great effort for any sound effects, Foley and especially dialog to be recorded in a similar environment to where it was originally shot. This helped the film sound more "live" and have more depth than many low-budget productions, where the dialog can sound very upfront and bland if hastily pumped out in a recording booth.

The action, horror and fantasy aspects of *Freak Out* provided some great opportunities to throw crap at walls and hit things with machetes and frying pans. A few sound effects tips: Try crunching mints in your mouth for cracking bones and really starchy pasta for great squelch and slime. For gore and crunches, I manually scrolled through selected pieces of audio—e.g., a coconut smash—at varying speeds and then recording them back in, slowly warping the beginning and then speeding up, and at the last moment adding some dramatic attack into what started out as a pretty standard piece of sound effects.

The original mix of the film was done only in stereo. I was very aware of many scenes' potential for surround, but I was too occupied with working through



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Glen Yarbrough gets bloodied up for his cameo performance—being sliced in half by a giant supernatural spatula

everything else before I attempted any true surround sound, as this was something I had never done before and my basic Pro Tools package had no surround tools. I was

working on producing a home surround mix just before *Freak Out* was snapped up by Anchor Bay.

The work continued after the first

screening and alongside subsequent showings. The film was re-cut and tweaked, requiring audio to be smoothed out. I attended as many screenings as possible, through numerous London industry showings and on a tour of universities all around England. These screenings provided me with as many questions as answers as to what I was doing right and wrong. Any adjustments I made were generally punching up the big moments, hits and screams, sucking bass out of some vehicle atmos and making moments of dialog clearer.

The ranging quality of exhibition environments was always interesting. The screenings in London left me feeling totally satisfied: At one point, we shook the room with a door slam—mission accomplished; I blew peoples' heads off! But the variable conditions of the university tour occasionally made me feel ill, exposing the fact that maybe I'd gone too far for less-



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powerful sound systems. We had a couple of screenings in science laboratories, one where the speakers were hidden in the ceiling covered by roof tiles and another where when we first arrived, the sound was set to come out of a projector's onboard speaker. Not ideal, to say the least.

As the university tour ended, we launched ourselves onto the festival circuit by way of a lot of heat we were getting from various print and Web reviews. Festival success came from the Rhode Island Horror Film Festival, where we won Best Genre Crossover; the Montreal Ubisoft Fantasia Festival; the German Weekend of Fear; the Festival of Fantastic Films in Manchester, England; and the Fearless Tales festival in San Francisco. From there we began our courtship with Anchor Bay.

During this period, I began to archive my work, because in the initial edit I didn't split my mixes into specific stems because I was working as quickly as possible. I had plenty of backup and kept the numerous single audio tracks in original edit form; i.e., in a big mess. Previously, I generally passed a single final mix track to James to be synched back up to the visual edit.

But for my own peace of mind and to make any future re-editing much easier, I began to work my way—scene by scene—back through the film, splitting up the original edits under the appropriate labels and adding or fiddling with anything that had continued to irk me through repeated viewings.

Once Anchor Bay got hold of the film, they employed a freelance sound mixer, Mark Whiley, to do a 5.1 surround mix. Alas, I wasn't invited to participate in that, but I made damn sure that everything would be fine by writing a thorough description of each scene and its surround potential, alongside time increments for reference. At the outset, Mark only asked for the minimum number of stems to work with—dialog, music and sound effects—but later added atmos, Foley and some extra surround-ready tracks to give him more flexibility. Mark did the surround mix using Apple's Logic program, and because the film was already mixed, his work for the surround mix was mainly keeping things as natural as possible regarding channel placement. The final mix was in Dolby Digital (AC-3).

Freak Out was a huge learning experience for me, and whereas I still felt unsure of myself when I left college, I now feel able to jump straight into new projects. Working on the film has given me confidence, craft, friends, an excellent business card (I can slap a swanky double-disc, surround-sound, special-edition loaded with extras on any potential employer's desk) and even some local celebrity status!

Through working on this project, too, I think I have happened upon the long-standing secret of doing high-quality sound on a low budget: There isn't one! Sadly, it seems it all comes down to hard work and creativity, even more so at this lowly level. I found that there was quality and consistency to my work because of what I had already personally invested in the project, so maybe the "secret" should be a passion to do the job and to do it well, regardless of time, energy and circumstance. ■

For more info on the film, go to www.freakoutmovie.com. Glen Yard has recently completed work on the British horror film *The Witches Hammer*. He can be contacted via kreepyglen@hotmail.com.



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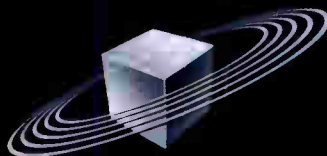
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Tenacious D



Photos and Text by Steve Jennings

Part rock 'n' roll show, part comedy act, the tag team of Jack Black and Kyle Gass (aka Tenacious D) whooped it up at San Francisco's Bill Graham Civic Auditorium in late November, plugging their new movie, *Tenacious D in: The Pick of Destiny*. Front-of-house engineer Craig Overbay is not only mixing the duo, but for the second half of the "rock opera," he's also contending with a full band (all in character): the Antichrist on guitar, Charlie Chaplin on bass, Colonel Sanders

on drums and, of course, a guest appearance by the Antichrist's father, the Devil.

Overbay is using a Digidesign VENUE board with 48 remote mic preamps and AES feeds from the stage into Dolby Lake processors. "This is my first time working on the Digidesign console," he says. "I have to say I enjoy mixing on it a little more every day. I'm using Focusrite Liquid Channels on vocals as an AES insert for both Jack and Kyle. Outboard effects are Lexicon PCM42, Roland SRV-2000 and two Yamaha SPX-990s."

Eighth Day Sound provided the L-Acoustics rig (14 V-DOSC and three dV-DOSC per side, nine dV-DOSC on the side hang, six d&b Q7s for in-fills and 18 d&b B2 subs). All cabs are powered by Lab.gruppen Q7 and B2s with d&b D12 amps. Black and Gass' wedges are d&b M2s and C7s; the band is on Sennheiser G2s with Shure E5s. The duo sing through Audix RAD-360 wireless mic systems with OM7 capsules.

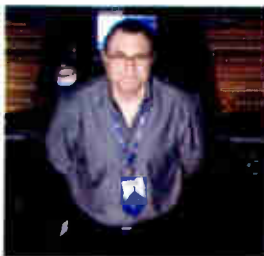
As for the rest of the crew, "Our monitor engineer [is] Derek Van Ord. I've worked with him before on Weezer's tour, and we get along very well," Overbay says. "He has a great work ethic and is not afraid to get right in the middle of things."



Craig Overbay (left) and assistant Jordan Zur from Eighth Day Sound

FixIt

For the 2006 European MTV Awards (November 2 at the Copenhagen, Denmark-based Bella Centre), sound designer Derrick Zieba worked alongside an audio team from Britannia Row, with local company DPA Sound handling the live sound from the town square.



One of our goals was to create an SR system with a huge wow factor for the audience, while providing outstanding audio excitement for our TV viewers. There were 3,000 in the Bella Centre with an additional 7,500 in the town square, and knowing that there's a potential TV audience of a staggering 1.4 billion, we had to keep our wits about us. With virtually all artists during the evening choosing Sennheiser mics and wireless personal monitors, it meant that I could go into a live show with confidence. The [Sennheiser] SKM 5200 is really the only choice where broadcast or recording is concerned. You can get a lot of dynamics from them, and they're a very rich-sounding mic. They won't overload the front end on you and have such a great pattern with a really smooth sound.

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News



Front-of-house engineer Bruce Jackson chose a Sennheiser 5200 wireless handheld mic with a Neumann KK 105 S capsule for the recent 20-date Barbra Streisand North American tour.

PHOTO: TOM BRIGLIA/FILMAGIC.COM

Denmark's second-largest outdoor concert event, Danmarks Smukkeste Festival, relied on Nordic Rentals A/S' Dolby Lake processor for the main-stage Adamson P.A....Touring the UK with Razorlight are front-of-house engineer Ian Laughton and systems engineer Colin Burrell, who are hanging Britannia Row's Electro-Voice X-Line...For such recent gigs as the MTV Video Music Awards, Firehouse Productions selected an integrated solution of Riedel's Artist digital intercom matrix and new Performer Digital Party Line to provide intercom communications during the event...Check out www.synaudcon.com for an updated 2007 Syn-Aud-Con schedule; two new workshops include "EQ 07" and "Hums, Buzzes and Things That Go Zap!"...The Stadium Theater's Grand Hall in Woonsocket, RI, recently welcomed a new sound reinforcement system featuring EAW AX Series full-range loudspeakers, CAZ Series power amplifiers and an MX8750 digital signal processor. The system also includes a Mackie Onyx 4880 house mixing console...Kingston Sound supplied stage production, lighting and sound for the Women's Day Event held at Kingsmead Cricket Stadium in Durban, South Africa. The company called on JBL VerTec VT4888 line array enclosures to provide high-fidelity audio to thousands of women who showed their support for women's rights.

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On the Road

International Jazz Festival

Celebrating its 40th year in bringing top jazz musicians to the University of Idaho, the Lionel Hampton International Jazz Festival (www.jazz.uidaho.edu, February 21-24, 2007) sees longtime engineer Terry Evans manning front of house, where he will be mixing from a recently upgraded sound system with the help of numerous engineers.

How did you get started with this event?

I have been involved for more than 25 years. I started competing at it when I was in junior high. I have been the jazz festival's production manager for 15 years and the FOH engineer for the past 10 years. A few years ago, I added an assistant FOH engineer, Anji LaBarva. My 10-year monitor engineer is Pete Hume, and his assistant monitor engineer is Mike Locke. My recording engineer is Hal Logan and his assistant engineer is Aaron Mayhugh.

What gear will you be using?

We are using a JBL three-way system with Architecture Series cabinets: AS-2222 and AS-4642 18-inch sub cabinets. We use a BSS Omnidrive controller and QSC amps to drive the system. Our FOH board is a Soundcraft Series Five, as is our monitor board. We also use a sponsored Allen & Heath ML5000 for the recording console. In addition to mixing to two tracks for video production, we multitrack-record onto five Tascam DA-88s and a Tascam DA-98. We use sponsored AKG microphones onstage.

In addition to the concert venue, we also produce the audio recording and reinforcement for 21 competition and clinic sites at which more than 15,000 students attend during each day.

Tell me a bit about the system upgrade.

We installed the system for our football stadium with the festival in mind and purchased a modular system that could be used for football and reconfigured for concerts. Before this, we contracted regional sound companies to support the festival.

Now Playing

Corinne Bailey Rae

Sound Company: SSE Hire (UK)
FOH Engineer/Console: Dan Lewis/
DiGiCo D5
Monitor Engineer/Console: Duncan
Wild/DiGiCo D5
P.A./Amps: Nexo GEO T/Camco
Monitors: Sennheiser Evolution G2s, SSE
12PM, Nexo Alpha E
Outboard Gear: TC Electronic M5000,
XTA D2
Microphones: Sennheiser e935, e945

Army of Anyone

Sound Company: Showco/Clair Bros.
FOH Engineer/Console: James
"Hootsie" Huth/Digidesign VENUE
Monitor Engineer/Console: Doug Nigh-
twine (also tour manager)/Digidesign
VENUE
P.A./Amps: local racks and stacks
Monitors: local wedges, Shure PSM 700
IEMs
Outboard Gear: Effectron 1024, Clair Bros.
iO system control, Klark Teknik DN6000
RTA, Eventide H3500, TC Electronic 2290,
EL8 Distressor
Microphones: Shure SM98, 91, Beta 56,
SM58, SM57, Beta 52, UR4D wireless
systems with Beta 58C capsules; AKG
414; Beyer M88



PHOTO: RICHARD WINTER



PHOTO: CHAPMAN BAEHLER

NSCA Brings In Fits & Starts

The National System Contractors Association (NSCA) has chosen Fits & Starts Productions to conduct its first House of Worship workshops at its annual expo. The HOW-TO Church Sound Workshops™ (www.howtosound.com) will be held at the Orlando Convention Center March 16 and 17, 2007, as part of the NSCA Expo (March 15 to 17, 2007).

The HOW-TO Church Sound Workshops provide church sound volunteers, media teams and musicians information on operating the sound systems in their churches, while learning about microphone techniques, stage levels, acoustics, mixing, equalization, signal processing and more. The workshops are produced in association with NSCA by Fits & Starts managing partner Hector La Torre and are led by instructor Mike Sokol.

Workshops include a three-hour "Microphone Techniques for Worship" (held March 16, 3 p.m. to 6 p.m.) and a seven-hour "HOW-TO Church Sound Workshop" (March 17, 8 a.m. to 5 p.m.). Attendees will be provided with lunch and a tour of the expo floor. Attendees will receive hands-on training featuring equipment from manufacturers including Allen & Heath, Aviom, AKG, ATS, Crown, Fostex, FSR, Mackie, Pro Co Sound, Rane, Tannoy and Whirlwind.

For more information, see www.howtosound.com.

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RAY LAMONTAGNE

Photos & Text by Steve Jennings



Since coming out with his second release, *Till the Sun Turns Black*, singer/songwriter Ray LaMontagne has been enjoying critical acclaim, which fueled a five-week tour of the U.S. before he headed off to the UK early this year. However, this success has not cost LaMontagne fans any of the simple intimacy they enjoy at his shows: the packed crowd at Oakland, Calif.'s Paramount Theater (where *Mix* caught up with the tour) felt like they were sitting in the artist's living room.

In fact, this simplicity is mirrored in the audio system, where, according to monitor engineer Rob Zuchowski, he is advancing specs for a line array instead of carrying racks and stacks.

Jay Bellerose, drums

"I've been talking with the local sound companies and coming up with the best ways to cover the rooms," he explains. "Generally, the local guys have been in the room 1,000 times and can suggest the best solution for coverage. It's a very quiet show, so coverage is key."

Monitor engineer
Rob Zuchowski

Helping Zuchowski on this tour is front-of-house engineer Doug Dawson, who is manning a Yamaha DM1000. On the other hand, Zuchowski is relying on house boards, where he's mostly seen Digidesign VENUE consoles. At the Oakland show, he mixed on a Yamaha PM4000. "I've got 21 inputs from the stage," he says, "and I'll attach the input and stage plot. I have an inside and outside pair of wedges for Ray, as well as the sidefills. Usually, only the center pair gets used.

*"The best tool I've discovered for mixing Ray is the flux capacitor," the monitor engineer says jokingly, making reference to the time-travel apparatus from *Back to the Future*. "I travel into the future and see if it's going to sound bad. That way, I already know what I'm getting into!"*





Vocalist/guitarist Ray LaMontagne sings through a Shure SM58.



Eric Heywood, guitars/pedal steel



According to guitar tech Josh "L-Cap-e-Tan" Nobles, Eric Heywood's guitars include a Creston Electric and a Gibson 1951 Southern Gentleman; the pedal steel is a Williams 11-string single neck, and the pedal board is loaded with a Fulltone Full-Drive 2, a Dunlop tremolo, MXR Phase 90, Keely compressor, Hughes & Ketner Rotosphere, a SIB! Electronics EchoArise and an EBow. LaMontagne plays acoustic Martin D28 and D35s. "I also condone liberal use of the flux capacitor to make sure my guitars will be in tune," Heywood adds. "Rock 'n' roll soldiers never say die!"



Jay Bellerose's drum kit is a World War II era Slingerland Rolling Bomber. "It's a great-sounding kit and Jay's a great drummer," Zuchowski says. "I've been getting away with just kick and overhead mics. We basically have a Shure package for the drum kit, as well. We use a Beta 52 and a Beta 91 mounted in the kick drum; Beta 98s on the toms; Beta 57 for top snare and SM57 for bottom; an SM81 on the hi-hat; and KSM 32s on the overheads."



The tour is carrying Audio Analysts VFX 15 wedges and VFX 360 sidefills with power. "They sound amazing," Zuchowski says. "I just tie them into the house console. The rest of the wedges just look good."



Jen Condos, bass

Gnarls Barkley

Tag-Team Duo Gets 'Crazy' Onstage

By David John Farinella

Tim Engwall and Stephen Curtin are tucked safely behind their respective Digidesign VENUE desks at monitor world and the front-of-house position, watching the Gnarls Barkley opening spectacle unfold. On this night, at the Bill Graham Civic Auditorium in San Francisco, main-brains Danger Mouse and Cee-Lo (right) have opted for astronaut costumes.

So far, Engwall and Curtin have seen the duo dress in costumes inspired by glam rock, *Austin Powers*, *Star Wars* and, to celebrate the holiday season, Santa and his elves, but they have yet to don an outfit themselves. "They threatened us with the glam rock one," Engwall admits with a laugh.

"I'm too far away," Curtin points out, "and I can run away."

This stop in San Francisco had the

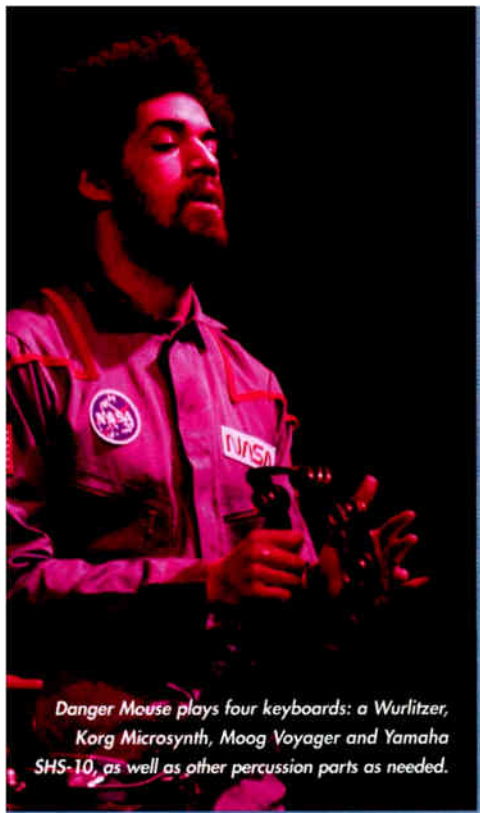
ALL PHOTOS: STEVE JENNINGS



Front-of-house engineer Stephen Curtin relies on house-provided P.A. systems while manning a Digidesign VENUE console.



Gnarls Barkley's string section plays electric instruments.



Danger Mouse plays four keyboards: a Wurlitzer, Korg Microsynth, Moog Voyager and Yamaha SHS-10, as well as other percussion parts as needed.

(M2 double-12s powered by d&b A1 amps) and sidefills (a pair of by d&b C7 subs and a C7 per side powered by d&b D12 amp), while the rest of the band is using Sennheiser personal monitors. The string section is on hardwired ears, and the two background singers, the guitar player and bass player are on wireless systems. Danger Mouse and Cee-Lo have had to turn to personal monitors from time to time if the costumes interfere with hearing the monitors.

Engwall manages all of the monitor mixes by staying organized and keeping things simple. For instance, all of the in-ear mixes are mono. "In my estimation, most of the sounds in the music aren't in true stereo effect, anyway," Engwall explains. "I try to make sure the mix is solid and that everything is there, then it doesn't make too much of a difference."

Curtin close-mikes the onstage elements to minimize bleed. "There are just way too many instruments and people onstage," he explains. "The one huge benefit we do have is that the strings are all electric, so I don't have to worry about that battle. Granted, we do suffer a little bit with the quality of sound between an electric and acoustic, but just not having that extra ambient microphone or pickup is huge."

As far as specific microphones, Heil PR 20s are used by the background vocalists and for drummer Chris Vrenna's snare top. A PR 30 is placed on the guitar cabinets and on the top of the Leslie cabinet. The PR 40 is used on the kick drum and the bottom of the Leslie cabinet. The only condenser mics onstage are placed on the drum kit: Sennheiser 914s for overheads, bottom snare, ride cymbal and hi-hats; 904s across the toms; 905 on secondary snare drum; and a Yamaha SubKick on kick.

Vrenna also produces a variety of sounds from triggers placed on both his kick and snare drum. "Chris is very Pro Tools-savvy, so he got together with Danger Mouse and got some of the drum sounds that were used on the record loaded into his triggers," Engwall explains. "For each song, he switches the triggers to make it sound like the record, which was really electronically produced and has a cool sound to it."

Cee-Lo sings into a wireless Sennheiser SKM 5200 with a Neumann KSM 105 capsule. The microphone was gold-plated, a gift from Curtin to the singer. "It started as a joke when he said he wanted a gold mic, so we got one gold-plated and gave it to him for Christmas this year," Curtin says. "He can sing, hands-down." Consequently, Curtin uses minimal processing on the vocals, turning to an Avalon 737 and either a TC Electronic D2 or 2290 delay when needed.

While Cee-Lo is singing to his heart's content, handmate Danger Mouse is groovin' on four keyboards—a Wurlitzer, Korg Microsynth, Moog Voyager and a Yamaha SHS-10—that are all DI. "There's nothing fancy, but he's got a little distortion pedal that he sometimes throws on the Wurlitzer," Curtin says. "It was one of those, 'I'm kind of bored, so I'm going to add something cool' things. That was a surprise during the middle of a show. I didn't know it was on there."

Secondary keyboardist Josh Klinhoffer plays a Hammond B3 with a Leslie cabinet, a Rhodes, Moog Voyager, a Yamaha YC30 and an E-mu E6400 Ultra. Curtin gets a pre-effect and post-effect DI from bassist Cedric Williams' tracks, and Clint Walsh's electric guitar tracks come to him through the PR 30 that is miking a Mesa Boogie cabinet. An acoustic guitar, as well as the string quartet's tracks, goes through Radial Passive DIs. "I'm a big fan of those," Curtin says. "It has a nice-sounding transformer in

Gnarls Barkley troupe in support of the Flaming Lips. The show, which also featured Cat Power, moved to Los Angeles the next night for a New Year's Eve performance.

While the crew is carrying Eighth Day Sound-provided consoles, monitor rigs and a mic package, they are relying on quality house P.A.s. "We were doing a lot of clubs and smaller venues, so a lot of people already had P.A. and it didn't make sense budget-wise to carry," Curtin explains. That means, though, that Curtin is finding himself fixing the house P.A.s more often than not. "It's maintenance stuff that people don't do anymore: things being out of phase, subs being blown up, mids and horns being blown up, discrepancies between left and right, stuff not being time-aligned." Local vendor Sound on Stage supplied an L-Acoustics V-DOSC system (14 boxes per side, with four of those aimed toward the wings and balcony) for this show.

ROCKIN' SHOW WITH MINIMAL STAGE VOLUME

Fans who have come out to hear Gnarls Barkley's chart-topping hit "Crazy" and other groovin' tracks from their release *St. Elsewhere* will find Curtin at the FOH board for the first time (he previously did monitors), a position he took over when the domestic leg of this tour kicked off in July 2006.

The plethora of instruments can lead to a loud stage. Add in the fact that both Danger Mouse and Cee-Lo use d&b wedges



Monitor engineer Tim Engwall: "I try to make sure the mix is solid and that everything is there, then it doesn't make too much of a difference."

there and I was trying to get back as much as I could from the strings, especially."

"The really cool thing is that they are very consistent on a daily basis and they like to have fun, so they are not afraid to change up random little parts," Curtin says. "I don't ever get bored because there's always something going on and there's always something new to add in and work on. The biggest thing is trying to keep up with the creativity of Danger Mouse and Cee-Lo." ■

Clearwing Productions

Redefining the Full-Service Company

Think back to this past holiday season. Rushing from store to store, trying to find the perfect gift. Or did you surf the Web, trying to make sense of the 2 million entries that came up when you searched for “toys”? Wouldn't it have been easier to go to one place? This same “one-stop-shop” business model appeals to clients of sound reinforcement companies, and Milwaukee-based Clearwing Productions (www.clearwing.com) is banking on its customers wanting this same accessibility to audio, lighting, staging, backline and the all-important crowd control by making one phone call.

According to audio operations manager Brian “BK” Koerner, “Clearwing’s heart has always been in audio and outstanding service to our clients. As our client list steadily grows every year, so do their needs. As long as I have known Greg Brunclik [owner of Clearwing, who focuses more on the sales side, but will still be found on some gigs], he has never backed down from a challenge. ‘Lighting? Sure, we can do that!’ ‘Staging? We have that, too.’ ‘Backline? What do you need?’ That is a big part of our success: the ability to sell audio and have the resources to give our clients a one-stop shop for their event.”

This mentality stretches across the U.S., as Clearwing opened a Phoenix office in March 2004. “The reason for the second location was because of the seasonal business,” Koerner explains, “although both the Milwaukee and Phoenix offices are seeing a consistent increase in jobs in what we used to call ‘off-season.’ Our Phoenix office offers the same services as Milwaukee, and we’ve seen that Phoenix is a hot spot for corporate work during the winter. The best part of having two offices is we sell shows in each other’s backyards.” However, it’s not easy managing two locales when one considers gear coordination, especially during the busy summer months. Case in point: Clearwing has been supporting Milwaukee’s annual Summerfest for the past 12 years. Celebrating its 40th anniversary this year, this 11-day festival will feature more than 1,000 musical performance groups entertaining close to 1 million patrons. Also, the same festival grounds hosts various ethnic festivals in the following weeks.

To meet the demanding SR requirements for any gig, Clearwing pulls choice gear from its predominantly L-Acoustics inventory. (Clearwing is an L-Acoustics/V-DOSC systems network partner.) Supplementing the company’s V-DOSC rig (which is powered by Lab.Gruppen or Crown amps) is another P.A. comprising Martin F2 cabs (also Crown-powered). “We built a new monitor rig this past year with L-Acoustics’ new Hi-Q wedges, but we still use a variety of Martin monitor wedge products,” Koerner says. In addition, Clearwing offers Yamaha, Midas and Ramsa boards; choice pieces of outboard gear (“You name it, we have it,” he says, “and if we don’t, we’ll get it.”); and



Either on the road or in his office—Clearwing’s Brian “BK” Koerner

a mic closet full of Shure, Sennheiser, Audix and Beyer models. This inventory can also be pulled out for numerous installs, including a recent one for Potawatomi Casino, where Clearwing brought in an L-Acoustics V-DOSC system. Clearwing will also be spec’ing the casino’s upgrade from a 700-seater to housing 3,000 guests.

But what’s a full inventory of gear without the know-how? The SR company’s audio department has 11 full-time, year-round employees in the Milwaukee office and will usually hire on five or six freelancers during the busy summer months, as well as cull from the local union. On the other hand, the Phoenix locale has a few full-time audio techs, but Clearwing relies on a long list of quality freelancers. And these hired guns can be seen not only at local events (clubs, festivals, corporate, theater, etc.), but also on high-end arena tours: Steve Miller Band, the Righteous Brothers (who have been Clearwing clients for more than five years), Gipsy Kings, Natalie Cole—and the list goes on.

Clearwing continues to focus on providing all services for each and every client. In Phoenix, the company opened up a retail pro shop; Milwaukee’s store is in progress and should be open by the time you read this. Both stores will be supported online at www.clearwingproshop.com. “In Phoenix,” Koerner recalls, “we had a client base that, while picking up their rental gear, would want to buy other stuff—gaffer’s tape, batteries, rigging, rope, gels, et cetera. In Milwaukee, we’re banking they’ll want to do the same thing.” In these stores, Clearwing will focus more on consumables for lighting and backline purposes, and is focusing on church and school clients. The way business is booming for Clearwing, it’s only a matter of time before these pro shops will be all-inclusive: lighting, staging, backline and, yes, pro audio. ■

Sarah Benzuly is Mix’s managing editor.



Atlanta opening in early 2007

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TURBOSOUND ASPECT TA-500 SPEAKER, TSB-118 SUBWOOFER

Turbosound (www.turbosound.com) expands its Aspect line with the TA-500 wide-dispersion speaker and the TSB-118 subwoofer, designed for use with the TA-500 and larger Qlight™ models. The TA-500 provides 50x25-degree (HxV) dispersion and three-way, full-range (60 to 18k Hz) sound from its 10-inch mid-driver on a MF Polyhorn, HF driver on an HF Polyhorn and a 15-inch LF driver. The design complements the longer-throw Aspect TA-880

products with similar voicing characteristics that allow easy integration of these models in any venue. The TA-500 is initially offered in a fixed-install/ground-stacked variant, with additional models being added. The optional TSB-118 subwoofer employs a single 600W 18-inch driver in a bandpass enclosure with a frequency response of 35 Hz to 150 Hz; stacking feet and a pole holder are standard.

SENNHEISER SK 5212 BODYPACK WIRELESS

Sennheiser's (www.sennheiserusa.com) SK 5212 UHF bodypack offers a smaller, lighter package with advanced features, such as infrared sync with the company's new NET 1 Network System multichannel wireless hub. The SK 5212 can also be used with all Sennheiser 3000 and 5000 Series components. Its 36MHz switching bandwidth is selectable in the entire UHF range from 450 to 960 MHz, and the transmitter frequency can be set in 5kHz steps. A single AA battery provides six hours of operation at full 50mW output. Transmitter power can be reduced to 10 mW for conditions or different regions. Features include a jog dial and backlit LCD that show AF/RF/battery level/frequency information; a menu-lock function to protect against accidental setting changes; and a two-stage, low-cut filter that removes wind or handling noise at 120 or 60 Hz.



STANTON A SERIES AMPS

Stanton DJ's (www.stantondj.com) A Series power amplifiers feature power ratings up to 2,800W and support for bridged-mono operation.



The A.900, A.1800 and A.2800 offer highly efficient tunnel-cooling systems; 21-position detented level controls; signal and clip indicators for status monitoring; and protection against thermal overloads, short circuits, DC voltage, subsonic frequencies and current overdriving. Other features include onboard switchable highpass filters and independent speaker-protection limiting; combo 1/4-inch/XLR inputs; and binding post/Speakon outputs.



LAB.GRUPPEN FP+ SERIES

The four amplifiers in the new FP+ Series from Lab.gruppen (www.labgruppen.com) use regulated switch-mode power supply technology, offering high power and channel density needed for touring applications. The flagship FP 13000 provides two channels of 6,500W @ 2 ohms; the FP 10000Q delivers four channels of 2,500W @ 2 ohms; the FP 7000 offers 2x 3,500W @ 2 ohms; and the FP 6000Q supplies 4x 1,500W @ 2 ohms. All of these two-rack-space models weigh 26.5 pounds and come with Lab.gruppen's six-year warranty. For the first time, Lab.gruppen's NomadLink™ control and monitoring network is available in a touring package as standard.

MACKIE TT24 DIGITAL CONSOLE OPTIONS

Mackie (www.mackie.com) is now shipping the DS3232 digital snake (\$4,999) and LP48 Lake Processor (\$1,299) options for its TT24 digital live console. A U100 network card in one of the TT24's expansion slots, combined with up to 300 feet of Cat-5 cable, can connect to the DS3232 rack-mounted stage box. This provides remote access to mic gain with full recall of all parameters. When adding the UFXII card, the snake provides 32x32 remote mix channels and the onboard 24 mic/line channels combine for a 56x32 system. The LP48 brings Lake processing to the TT24 in three configurations: as a 4-in/8-out loudspeaker processor; providing up to 10 channels of Lake-designed insert EQ processing; or in a combo mode with five channels of insertable EQ and a 2-in/4-out loudspeaker processor.



CARVIN LS SERIES SPEAKERS

Designed for club installs or portable use, Carvin's (www.carvin.com) LS Series has three two-way systems, three three-way systems and two optional subs, priced from \$399 to \$799. All feature steel grilles, recessed handles, high-order/low-loss crossovers, cross-laminated plywood construction, Neutrik Speakon and 1/4-inch connectors, and Duratuff

finishes. All are bi-ampable, except the smallest LS1002. The two-way models have 10/12/15-inch woofers with titanium HF drivers and can be used as house or monitor speakers. Highs on the three-way models are handled by a 1-inch exit-compression driver on a 90x60-degree Constant Directivity horn. The three-way LS1503 pairs the HF with a 15-inch woofer and 6-inch cone mid; the LS1523 combines dual 15-inch woofers and twin 6-inch mids with the HF complement; and the LS2153 uses a 15-inch woofer and 15-inch LF/MF driver with the HF package. Single- and dual-18-inch subwoofers are optional.

What the pros are saying about Gefell:

Bill VornDick - Engineered 42 Grammy-nominated recordings and 8 Grammy winners. Artists include Alison Krauss, Bob Dylan, Peter Atkins, Bela Fleck, James Taylor, T Bone Burnett, Mark O'Connor, Ralph Stanley and Dolly Parton.

"It's like having a secret weapon... My Gefell mics are extremely clear and transparent. They give me the definition that many other mics do not capture."



Alan Silverman - Engineered 21 Grammy-nominated recordings. Credits include Chaka Khan, Norah Jones, Cheap Trick, The Kinks, Bebo Galdes Ricky Skaggs, Bill Monroe, Art Garfunkel, Meatloaf, Keith Richards and The Producers.

"It's the ultimate compliment when a singer or musician says they've never sounded better. In particular, the sound of the UM900 is sparkling, enormous and exciting. My Gefell microphones have earned this praise time and again."



David Rideau - Multi-platinum engineer/producer and three-time Grammy nominee. Clients include Sting, Jimmy Jam & Terry Lewis, TLC, Janet Jackson, Earth Wind and Fire, George Benson, Tom Scott, Al Jarreau and Kirk Franklin.

"The Gefell M930 is a wonderful sounding mic that has given me great results on acoustic piano, acoustic guitars, percussion and drum overheads. The low self noise also makes it a perfect choice in situations where wide dynamic range is an issue. I call it my elegant workhorse!"



Dave Bottrill - Peter Gabriel, Deep Forest, King Crimson, Robbie Robertson, Tool, Silverchair, Tony Childs, Joni Mitchell, Trey Gunn, Youssou N'Dour, Kid Rock, Roger Eno and the "Philadelphia" soundtrack.

"For vocals, the Gefell UM900 is warm, open and very robust. The control also makes it flexible. It works well on percussion and acoustic instruments, all the while retaining the air and presence that one expects from a large diaphragm microphone."



Get Real

Real History

Since 1928, Gefell has led the world in microphone technology, starting with the world's first condenser. In 1935, the remarkable M7 capsule was introduced. That led to the legendary sound of the U47, the U49 and in 1957, the UM57 - the first ever multi-pattern microphone.

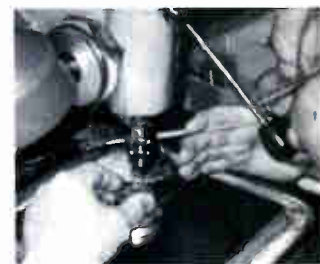
Today, Gefell continues the tradition under the direction of Mr. Kühnast Jr. with the original M7 capsule featured in the UM75 and UM92.1S tube microphones.



Georg Neumann with Chief Engineer Mr. Kühnast Sr. - circa 1933

Real Quality

Quality comes with the desire to do it right. For over 75 years, Gefell has built microphones by hand in order to achieve the highest standards possible. From the precision machining of raw metal stock to the hand-stretching of each diaphragm and individual testing of each microphone in an anechoic chamber, Gefell sets a standard that is simply higher than any other.



2004 - Hand-drilling an M930 back plate

Real Innovation

Introducing the M930 - the most advanced condenser microphone made today. Compact for easy placement, the M930 features a full-size 1" diaphragm mounted on a triangulated pedestal to diffract body reflections away from the capsule and minimize acoustic field disturbance. Inside, the M930's optical power isolation lowers self-noise to a mere 7dB while providing 80 Volts to the capsule for an unprecedented 142dB signal handling. The results are stunning: that 'big bold German sound' without compromising sensitivity, articulation or tonal structure. No other microphone comes close.



M930 matched stereo pair with SH93 X/Y bracket

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Micro-lution

Inside the AKG C-414

My focus this month is on the AKG C-414, a venerable studio condenser mic that has about as many permutations as the Universal Audio 1176. At first glance, this might appear to be a history of the 414 when it's really about understanding the technology, the mic's inner workings and trying to keep it working.

This story started with a collection of broken mics waiting for a quiet, undistracted moment. The sad thing about many of these specimens was their physical condition—AKG 414s with their head assemblies and grilles snapped off, or dented Neumann U87s with broken switches, and filthy and punctured capsules. So, at the very least, use a windscreen and keep your mics out of harm's way (and/or flailing drumsticks) or use an out-of-the-way mic like the indestructible Josephson e22S.

CHARGE IT UP

Condenser mics start with a polarized capsule, meaning that a charge is put on the capsule that will vary with changes in sound pressure. The impedance of the network around the capsule is in the gig-ohm region, making what little signal there is weak and vulnerable. This voltage from the capsule is fed to a "head" amplifier that, at minimum, will convert the impedance from gig-ohms to k-ohms. Most amplifiers will contribute voltage gain (make the signal bigger) and current gain (make the signal stronger; aka, more power). One variation is detailed below.

The 414's lineage begins with the CK-12 capsule and the C-12 microphone (1953 to 1963). The C-12 uses one-half of a 6072 dual-triode configured as voltage amplifier (common cathode). The other half of the 6072 was reserved for the C-24, the stereo version of the C-12. In the late 1950s, Neumann stopped making the U47 and U48 for Telefunken, so AKG was approached to make similar products: the Telefunken Ela M 250 and Ela M 251. Aside from the obvious polar pattern options and a different outside housing, they are at heart a C-12 with a few circuit variations. (See Figs. 1 and 2.)

The C-12 has a grounded cathode, while the 250/251 E versions use the same 6072 but in series, where the cathode is a resistor in parallel with a capacitor. The non-"E" broadcast versions of the Ela M 250/251, as well as the Neumann M269, use an AC-701. (The U67 uses an EF-86/6267, a pentode wired as a triode. The AC-701 is a miniature triode with wires instead of rigid legs.)

NEW VISTAS

In 1959, RCA introduced the Nuvistor—a transistor-sized vacuum tube—and by 1962, AKG had incorporated it into the C-12A, a new mic that debuted the now-familiar "414" body shape. Because there was no room in the C-12A for an output transformer (it's located in the power



The modern C-414 hails from the original C-12, shown; the C-12A that followed it used a Nuvistor tube and debuted the familiar boxy body shape associated with the later 414 Series.

supply), the amplifier's output impedance must be lower to drive the long mic-to-power supply cable and the extra capacitance created. For this reason, the little 7586 Nuvistor is configured as a cathode follower—a current amplifier—rather than the common cathode circuit in the C-12 and Ela M 250/251. [Note: Both the 7586 and its lower-gain cousin, the 6CW4, have a 6.3-volt filament that draws 135 milliamps.]

I first encountered the C-12A in 1978 while working at Bearsville Studios in upstate New York. While the C-12A was not as highly regarded as the C-12, I recognized that the C-12A was special. (I was careful to hide it in a drum kit—under a pair of rack toms and set to omni—so it wouldn't get smacked.)

MOD WORLD

In 1968, Neumann published a document detailing modifications for the U47 and U48, substituting the VF-14 with another Nuvistor, the 13CW4 (the 13-volt version of the 6CW4), chosen for its low heater current of 60 milliamps as compared with the 6CW4's 135mA consumption. The stock U47/U48 consumed a mere 40 mA of current, so "minor mods" to the power supply and mic were all that were required to meet the new, slightly higher current demand. Of course, nothing sounds quite like a VF-14.

AKG then took advantage of the earliest replacement for the vacuum tube—a field effect transistor—to make the C-412 and C-414 possible. (They look identical to the C-12A; the lower, "unfamiliar" section of the mic is a 6-pin connector of which only three pins are used, thanks to the development and success of phantom power. One special version, the C-414E1, was phantom-powered but took advantage of the additional pins for remote pattern control.) The external power supply was eliminated. Most of the active and passive devices were successfully miniaturized. There was now room for relocating the pattern, highpass and pad switches into the mic body. "Iron" was the final obstacle to the process. The U47's output transformer is about the size of a 414 body, sans grille, and things have been shrinking ever since.



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World Radio History

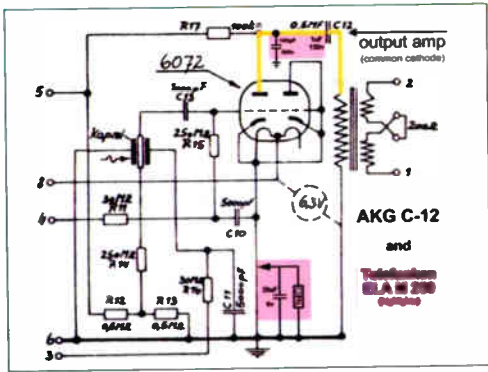


Figure 1: AKG C-12 schematic with Ela M parts and output circuit path (common cathode) highlighted

Transformers are already harder to drive and easier to saturate at low frequencies; miniaturization makes saturation easier or more challenging to overcome.

When the C-12A was in production, AKG was already aware of how subsonic information challenged the output circuit. As mics were being moved closer to the source, even more low-frequency content was added (courtesy of the proximity

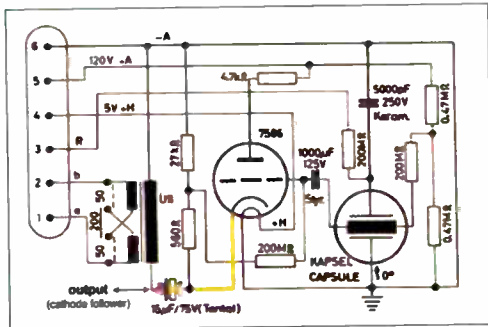


Figure 2: AKG C-12A schematic with output path (cathode follower) highlighted

effect). All of this, plus cost, drove the quest for continued circuit improvements until the transformer was eliminated by all but boutique manufacturers.

BRAIN DRAIN

Vacuum tube electronics are elegantly simple because there is typically a single gain stage and all power is derived from an external power supply. Within the mic are three networks: the capsule-polarizing voltage, the filament and plate power. With the exception of the capsule, repairs are relatively easy.

Things became more complex with the introduction of solid-state electronics and phantom power. Up until the C-12A, there was a single active device in the mic, but when the C-412 and C-414 were introduced, there were three active devices, four in the C-414EB (1977) and C-414EB-P48 (1982),

and 18 in the C-414B-TL!

While 48 volts is nearly enough to polarize some capsules (the C-414 EB/P48 version), many designers chose to incorporate a switch-mode power supply within the mic to make the capsule voltage independent of variations in phantom power and amplifier demands. A switch-mode supply comprises an oscillator and voltage-multiplier circuit that can deliver the required polarizing voltage and tolerates a wide phantom supply range—from 9 to 48 volts.

There are two versions of the C-414EB: The 1977 version has a switch-mode supply and the P48 (1982) version runs exclusively on 48V phantom power. The former has a fairly simple three-device “head” and output amp on one PCB and a transformer-based switch-mode supply on the other PCB (with a single transistor).

The P48 version has a two-device headamp on one board; on the other, the highpass filter is integrated into the two-device output circuit. Whereas the C-414EB has a very conventional, nearly tube-like design, the P48 version makes use of a current-source configuration to optimize the load for the head and output amplifiers. It was a remarkably efficient mic for its time.

ONCE BITTEN

This is where I get to admit that the P48 stumped me for quite a while. It’s common knowledge that capacitors are the component most likely to fail over time. In this case, the output capacitor shorted out, bypassing the current source and making the output amp appear functional. (The two-board design that began in 1977 allows the signal between boards to be easily interrupted so that an oscillator could be injected.)

Without the current source, the output amp was drawing more than 1 mA of current, swamping the capsule-polarizing voltage and making the mic appear dead. I was thrilled to get it up and running, but embarrassed to be bitten by a stupid capacitor, even though it wasn’t the only obstacle.

Experiences like these make us smarter. At minimum, it put me on a fact-finding tour to collect all of the schematic variations. It also forced me to learn the contribution of every component until I fully understood the entire circuit. ■

Eddie would like to thank Pat Burns at AKG, and all of the Web’s contributors for bits and pieces of history and documentation.



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Tools of the Trade

RUPERT NEVE DESIGNS 5088

Even after promising his wife he wouldn't, Mr. Rupert Neve (www.rupertnevedesigns.com) has returned to console design with the Rupert Neve Designs 5088 16-channel, 8-bus expandable console. The 5088 uses custom I/O transformers, transformer-coupled direct outs, eight mix buses and eight aux sends. The 5088 is expandable in 16-channel sections up to 64, and comes with a monitor/master section that includes four stereo effects returns, selection of three control room monitor outs, six monitor sources, AFL/PFL solo modes, and talkback and oscillator functions. A meter bridge is optional. Pricing TBA.



6a (\$449/pair) has an on-board 120-watt amp and a 45 to 20k Hz bandwidth; the Pump 8a (\$529/pair) has 150W of power and extends LF response to 40 Hz.

MARANTZ CDR310

The Marantz CDR310 (www.marantz.com, \$1,049) portable CD recorder can operate in the field for a limited time on AA batteries or up to four hours using an optional rechargeable battery. Recording

in either uncompressed or MP3 formats, it also features built-in mic preamps, XLR connectors and 48V phantom power, as well as a built-in mic.

Its burner can create audio CDs or data discs for transfer to a computer for archiving purposes. Background

Record mode enables recording to always be active as an ongoing backup, even when the CDR310 is in Pause. Recording can also be active in Pre-Record mode for up to 10 seconds with the recorder stopped for capturing important moments. Analog and S/PDIF I/O ensures connectivity with a wide array of other gear.

ANDY JOHNS CLASSIC DRUMS FOR BFD

Engineer Andy Johns, whose discography reads like the roster

from the Rock and Roll Hall of Fame, has released a BFD Expansion Pack collection of drum samples (www.platinumsamples.com). Recorded to a Studer analog tape machine through a classic Neve 80 Series console, the drums are sampled at more than 255 velocity levels. The pack requires that BFD be installed and is compatible with both Mac OS X and Windows. BFD supports Digidesign's RTAS format, as well as the VSTi, DirectX, Audio Units and Propellerhead ReWire technologies, and can also run as a stand-alone application.

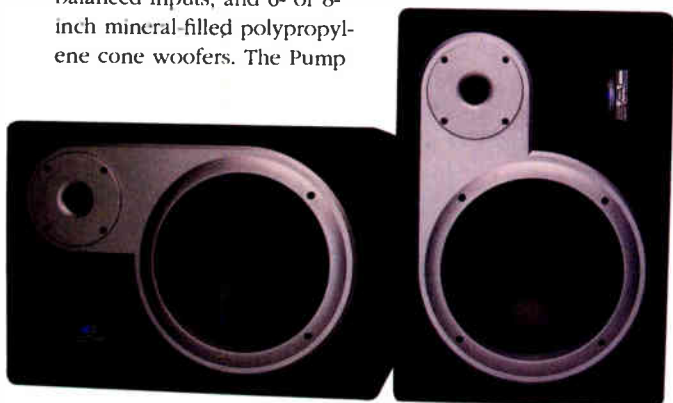
SOUNDELUX U99S

Literally two mics in one, the U99S from Soundelux (dist. by TransAudio Group, www.transaudiogroup.com; \$3,250) is a new version of the U99 that combines the performance of two condenser mics, giving users the choice of normal or bright sonic signatures. Promising to avoid the 5kHz rise common in some vintage mics, the U99S offers high output and a tamed-down proximity effect. The U99S comes with the P99 true linear power supply, derived from



SAC PUMP MONITORS

You can "pump" up the volume with SAC Pro Audio's (www.sac-pro.com) new 6a and 8a Pump powered monitors. Both rear-ported units feature mag-shielding, front volume control, XLR balanced and 1/4-inch unbalanced inputs, and 6- or 8-inch mineral-filled polypropylene cone woofers. The Pump



the original vintage technology. Other features include a handmade, German 1-inch diameter, dual-symmetrical backplate and a dual-membrane kk67-type capsule tensioned for warmth and clarity.

CELEMONY MELODYNE PLUG-IN

For users who have always wanted to use Melodyne from within a DAW, check out the new Melodyne plug-in (www.celemony.com). Available for VST, Audio Units and RTAS hosts running under Windows XP and Mac OS X, the single-voice app offers editing of pitch, vibrato, drift, timing, volume and formants of individual notes, as well as the swift editing of any selection of notes with macros for the automatic correction of intonation and timing. Other features include multilevel undo and a selectable scale grid for harmonically correct transposition. In addition, rotary controls for pitch, formants and volume can now be automated from the host. The plug-in is \$199 or free to registered Melodyne Studio 3 users.

M-AUDIO NRV10

The NRV10 from M-Audio (www.m-audio.com, \$899.95) is an 8x2 analog mixer with a built-in 10x10 24-bit/96kHz FireWire digital audio interface. Featuring four mono and two stereo channels, the unit is compatible with any DAW, including Pro Tools M-Powered. The unit is also useful in live applications, with its flexible monitor-source assignment, monitoring section and aux section. Channels 1 through 4 provide XLR mic inputs with phantom power and line inputs on TRS connectors. It features 1/4-

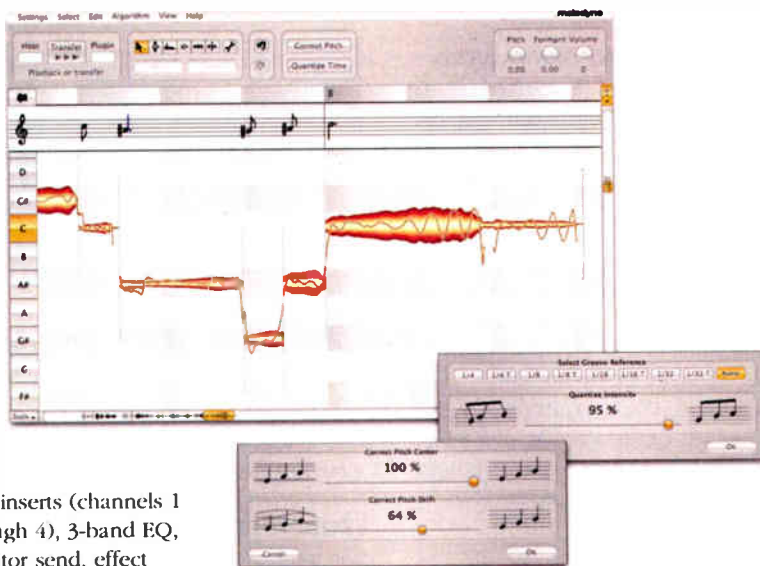
inch inserts (channels 1 through 4), 3-band EQ, monitor send, effect send, pan/balance, Mute/Cue button and independent volume for mix, control room and headphones. Also standard are 16 onboard effects and more outboard power via the Mac/PC interFX software.

LIQUID INSTRUMENTS THE VOICE VOL. 1

The vocal union is gonna love this! Uberschall's Liquid Instrument Series Vol. 4: The Voice Vol. 1 (www.uberschall.de, \$199) sample package offers total control over every single voice and melody. Focusing on pop, dance and R&B production, this choir collection lets users quickly create vocal harmonies and chord progressions from simple ad libs to complex harmonic structures. Every vocal phrase has been dubbed eight times by two (male and female) singers for a total of eight different tracks per vocal phrase. The recordings were made acoustically dry without effects or filters at 24-bit/44.1kHz, and the 3GB library has 300 phrases cut between two and eight bars for a total of 2,400 loops.

SYNK AUDIO MUSICBED DV 1.6

Synk Audio's Musicbed DV 1.6 (www.synkaudiostudios.com, \$249) adds new surround music features and more than doubles the amount of royalty-free music content from previous versions. It also simplifies the process for generating custom soundtracks to match the mood and timing of video and audio projects. Users can make quick, real-time



adjustments to tweak musical intensity, complexity and dynamics. Control curves are available for adding musical builds and punctuation that underscore and accent the emotional movement of projects. This stand-alone Mac application has extensive import and export options for easy integration with Apple's iMovie, GarageBand, Final Cut Studio and Logic.



PRESONUS V-FIRE

Acting as a kind of mediator between Roland R-BUS devices and the rest of the computer world, the PreSonus V-FIRE (www.presonus.com, \$399.95) converts Roland's R-BUS digital audio format to FireWire. The slim tabletop box features two R-BUS ports and two FireWire ports, allowing 16 channels of digital audio to stream at up to 24-bit/96kHz. The V-FIRE is also equipped with R-BUS 1, R-BUS 2 and master sync LED indicators. The Mac/Windows XP-compatible V-FIRE will also ship with a software control panel, enabling the user to select the latency, buffer size, clock source and sample rate (44.1/48/88.2/96 kHz).



EXPERIMENTALSCENE SPATIALVERB

The ExperimentalScene SpatialVerb (\$20) is a VST reverb that models early impulse responses using ray-tracing while the late impulse response is created by a feedback delay network for greater smoothness. The entire audio path is 32-bit floating-point format for high precision. Tweakers will love the controls for the room's wall size, the location of two source and two destination nodes, and absorption controls. The GUI shows the early and late impulse response and displays a ray-traced preview of the room at an instant in time with the impulse passing through. Download a 60-second demo at www.experimentalscene.com.

AUDIOCUBE PLUG-INS FOR PT

Known for its audio mastering/restoration/archival products, Cube-Tec (dist. by Sascom, www.sascom.com) releases its popular AudioCube



plug-ins for the Pro Tools Mac OS X RTAS platform, which were previously available exclusively for Cube-Tec's high-end AudioCube, Quadriga and Dobbin systems. The new plug-in line will be released in three stages, starting with DeBuzz, Spectral DeHiss Expert, DeScratcher and DeCrackler, followed



later by Azimuth, RepairFilter, DeClipper, DePop and a comprehensive suite of mastering plug-ins.

EZQUEST PRO STUDIO RAID

Said to be the world's first multi-lane SATA storage solution, the EZQuest (www.ezq.com) Pro Studio Raid comes in dual multi-lane and single multi-lane PCI-Express and PCI-X models (www.ezq.com). They can be purchased in single-channel 1.28TB (\$1,999), 2TB (\$2,799) and 3TB (\$3,749); and dual-channel 2.56TB (\$2,999), 4TB (\$4,669) and 6TB (\$6,629) versions. The dual multi-lane delivers more than 560MBps sustained data throughput, while the single-lane PCI-Express has more than 240MBps and the single-lane PCI-X has more than 200MBps sustained data throughput. Users can easily connect and configure up to 6 TB of desktop storage within minutes for RAID level 0, 1, 5, 10, 50 or JBOD.

GLYPH GT 062

The GT 062 drive from Glyph (www.glyphtech.com; 320GB, \$475) offers SATA drive technology and more connectivity and configurations than its predecessor, the GT 060BR. The tabletop unit can be configured in JBOD (two drives are seen by the computer as two single volumes), Spanning (multiple drives seen as one large volume) or RAID 0 (reading and writing data from two drives at the same time). Its Seagate SATA drives incorporate Native Command Queuing (NCQ), which reduces rescheduling and reordering commands so the heads travel less over

the drive platters, allowing more data to be streamed from the drive. The rear panel houses two FireWire 800 ports, a FireWire 400 port and a USB 2 connector.

SYNTHOGY ITALIAN GRAND EXPANSION PACK

The fourth grand piano in Synthogy's Ivory virtual instrument collection is available in the Italian Grand Expansion Pack (dist. by Ilio, www.ilio.com; \$139). It features 2,000 samples (more than 19 GB) of a 10-foot Italian concert grand piano that was recorded at the SUNY Purchase concert hall in New York. The samples offer 12 velocity layers, as well as soft-pedal samples (una corda) and release samples at multiple time and velocity levels. The Italian Grand Expansion Pack is offered as a separate add-on volume that requires installing Ivory 1.5, providing a new set of programs and keysets that will appear within the Ivory user interface. It ships on DVD and supports Audio Units, VST (Mac/PC) and RTAS (Mac/PC) formats.

AVLEX SUPERLUX S241/U3

It's a bird, it's a plane—no, it's Avlex's Superlux S241/U3 condenser mic (www.avlex.com, \$250), featuring interchangeable capsules, a 3-position attenuation pad and a 3-position low-cut filter. The gray-finished S241/U3 offers a hump in the high end, making it optimal for instrument recording. It ships in a sturdy plastic carrying case and comes with the HM-40 shock-mount clip, S-09 foam windscreen and the HM-43 pop filter. An optional phantom power adapter is available for those needing to power the mic in the field. ■





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SmartSound Sonicfire Pro 4 Software

License-Free Music Creation With Mood Mapping

Sonicfire Pro 4 is the latest incarnation of SmartSound's Sonicfire Pro software series for creating royalty-free music for video and other projects. Entry-level versions of the program have been included in video-editing packages from the likes of Adobe, Avid and Ulead for some time. The latest stand-alone version improves on Version 3 by adding more control over the mix, multilayer tracks from the Strata Series sound library and what Smart Sound calls "mood mapping": essentially, an automated way to break down the mix and turn various combinations of instruments on and off with automated transitions along the timeline. It is cross-platform-compatible for Mac and PC, and includes Universal Binary support.

AND AWAY WE GO

This was my first time using a SmartSound product, and I found it very easy to get in the flow and start customizing tracks. For the test, I used the 3GB Mega Bundle (\$799), which contains music from SmartSound's separately priced libraries that are optimized for film, TV and corporate applications. Once the disks were loaded, the performance was quite good on both my aging Pentium 4 system and a newer Dual-Core system. Ultra 320 SCSI drives work well with this kind of app. You can search the library by style, instrument and intensity, and then mark your favorites. As you get more familiar with the library, you can return to music that suits your taste. Once you find something that appeals to you, bring it into the multitrack timeline view and get started on your music creation.

First select whether the track should have a beginning and ending, or if it should be a loop. Even if you're not sure of the necessary length, simply dump in the track and drag the edges right or left to make it shorter or longer as you experiment on the fly (with a slight delay) to "rebuild" the track. The app is also smart enough to snap to the natural breaks in the song when you shrink and expand the tracks, so the result is always musical.

I'M IN A MOOD

The mood mapping feature is essentially automated mixing and selection of tracks. The moods include Full, Background, Dialog,

Heavy, Light, Rhythm Only, Atmosphere, etc. Moods are inserted by clicking on the mood map in the timeline that runs along the top of the tracks. A shift in mood will change the tracks' instrumentation and volume.

Sonicfire creates a transition between moods, which works pretty well. Of course, you can customize the length of the transition

or remove it for those times when an abrupt change is preferred, such as when you are moving from the sparse Atmosphere to the full mix where all tracks are activated. You can also assign a volume level to each instrument in each change of mood. The mood mapper serves as a jumping-off point and is a handy time-saver. This feature is great for engineering types who are MIDI- and compositionally handicapped. You can exercise your mixing chops while leaving the music creation to the application.

TRACKS FOR PICTURE

I used Sonicfire Pro 4 to create tracks for a video where the music had to be replaced and remixed with the dialog. About half of the music I used in the final project came from the Guitar Grooves library in the Mega Bundle. I simply timed the required tracks and used the mood mapper to create the desired mix. After a little sweetening, I replaced the mix in the video with the royalty-free tracks; the results were great. With judicious use of plug-ins and effects, the library becomes even more versatile.

Sonicfire Pro 4 works with a wide range of standard audio and video files, including WAV, AIFF, MP3, AVI, MOV, MPEG and SmartSound's SDS and SSUP files. You can add tracks from your own library of samples and musical phrases, and bring in video as a reference for mixing in the multitrack view. The final mix can be exported as discrete instruments on separate tracks or as a mix for further processing.



Sonicfire Pro 4 features mood mapping, a way to mix and automate tracks.

IS IT FIRED UP?

I enjoyed using Sonicfire Pro 4; however, I'd like to see SmartSound make better use of the right mouse-click to allow instant access to editing from within the timeline view. There were a few times when I anticipated a menu option would be available, but it wasn't. Also, the first time a new sound library is located on the DVD drive, you're given the option of copying the library to your hard drive. If you decline to do so the first time around, the option is no longer available.

In the end, it boils down to the quality of the sound libraries, and SmartSound's new Strata Series holds its own. Some of the stuff could be classified as B-grade, suffering from too much processing and dated riffs, but overall, you get your money's worth with the Mega Bundle. If you don't want to invest in the über-library at the time of purchase, you can go with the Standard Edition (\$199), which includes two multilayer discs from the Strata Series. SmartSound has done a nice job of making Sonicfire Pro 4 easy to use and hiding its power under the hood. By letting Sonicfire Pro 4 do the work of the composer and mood-mapping the composition to my video, I was able to turn around a project that would have taken much longer if I had to do everything from scratch.

SmartSound, 800/454-1900, www.smartsound.com. ■


Rick Spence is the owner of AVT Pro, a production company in the Silicon Valley.

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Avantone AK-Type VII Microphone

Flat Omni Records Mega SPLs

The AK-Type VII from Avantone, part of the company's Signature Series of mics, is a hand-built omni made in limited quantities. The stainless-steel body tapers at the front, offering a slender profile that is both hefty and speaks of quality. I'm partial to mics that are easy to place by virtue of their design and mount, and the Type VII satisfies on all counts. The included banded SSM shock-mount tightly holds and isolates the mic, making it easy to sneak into tight spots. The mic ships in a nice wooden box that cradles the mic and the mount.

SMALL MIC, BIG SPLs

The mic features a medium-capsule, pre-polarized condenser element that offers 25dBA self-noise. This amount is slightly higher than I'd like in a mic used for detail work, but it worked well in all situations for this review without the noise being obtrusive. Max SPL is 160 dB, a spec that I ended up putting to the test by recording a Porsche 911 engine (more later)—all this from a mic that's just under 6.5 inches and weighs in at just more than a third of a pound. The frequency response is almost dead-flat—nearly out to 40k—wiggling a bit past 10k but never more than ½ dB.

FROM TINKLE TO ROAR

I first heard the Avantone on various percussion elements. Its ability to take up to 160 dB makes it perfect for up-close, high-transient situations. The mic's flat nature worked especially well for percussion. Also, the slim silhouette makes it easy to point-

and-shoot it toward any source. It sounded great on shaker, bells, finger cymbals and other "tinkly" hand percussion without EQ. I never had to worry about the "nasty" side of these instruments overloading the mic, and placement was easy. When I later used it on a cajon that had considerable bottom end, however, I needed to boost the lows at about 100 Hz.

The pair offered plenty of silky top when I put them up as a spaced pair over a drum kit. The cymbals were clean and the stereo image was accurate. They were equally adept at representing the kit in the room when I set them back about five feet from the front of the kit at knee height. Once again, I found I had to kick in the bottom end a bit to get the lows to speak, but that was easy to do with SSL 4000 Series EQs.

I next used the Type VIIs as a spaced stereo pair on acoustic guitar. It brought out the sound of the pick on the strings nicely and presented an accurate stereo picture of the instrument. Its flat bottom end made it perfect for this application, not being boomy in the least. For this scenario, I prefer to use a mic that doesn't have a bump at the bottom end rather than having to take out any boominess with EQ.

Next, I recorded an acoustic guitar pointing the mic directly where the sound hole meets the neck, about nine inches back. This setup is tricky because even a slight alteration in placement can change the personality of the recording. In this case, I captured a nice even top that wasn't overbearing and had plenty of bottom, although it was a bit boxy. As an experiment, a Retro Sta-Level compressor (see page 98 for the Sta-Level "Field Test") was put across the insert and set to a medium attack and release. This immediately brought out more of the silky Type VII top and tightened up the bottom. With the mic's natural top-end boost, it was easy for the Retro to dig out that info from the existing recording.

START YOUR ENGINES!

I was able to hear the mics employed in a recording of a heavily modified Porsche 911 Turbo at Xact Dyno in Arizona. The mics were placed on stands in the engine



compartment, literally inches from whirring engine parts. The recording was for use in a videogame, so sustained rpm was the order of the day, which was achieved by putting the car up on a dynamometer and then revving it at different levels with and without load. Various mics were used, including our intrepid Type VIIs, all sent through an Aphex 1788 remote-controlled mic preamp. The SPL handling capabilities of the Type VII made it a great choice for a situation where the dynamics of an engine on a dyno could easily cripple a mic with lesser ability. The mics stood up to the task, producing plenty of clean signal, even out to ear-splitting rpms.

IS VII HEAVEN?

The Type VII excels in a number of areas. First, it's small and easy to work with. Its response is flat at the bottom, so be warned that there is not a lot of help at that end of the spectrum. You'll need to boost some bottom if that's what you're looking for. The natural-sounding, flat top end out to 40k helps with percussion and other applications where you need the top end smooth and natural.

It was nice to put the mic into extreme circumstances with the recording of a roaring performance engine on a dyno for use in a videogame. It handled all the SPL that the engine could put out without a complaint. At a price of \$599, and with this kind of versatility, the Avantone AK-Type VII is worthy of a listen, whether you're recording race cars or not.

Avant Electronics, 909/931-9061, www.avantelectronics.com. ■

Kevin Becka is Mix's technical editor.



Avant, start your engines—an AK-Type VII records a heavily modified Porsche 911 Turbo



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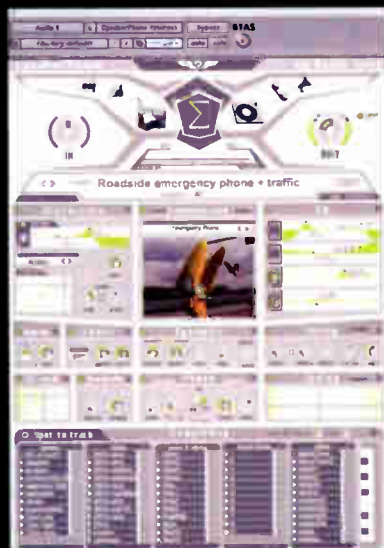
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"At Audio Ease we're almost all over 35 now, so there's really a lot of things that we don't like. The software boxes on the top shelf. Couldn't reach them. But now we have a ladder. We didn't like stale bread for lunch either. So we got a bread maker.

Me, I hated waiting for my editing software to boot just to extract a snippet from a sound file. Or the Finder preview not playing back split-stereo sound files, or having to jump through hoops just to e-mail an MP3 of some WAV that I can just see sitting there on my Desktop. Or importing a 5 minute song even if I just need 5 seconds of the break in the middle.

A sound file in the Mac Finder just feels so, well, closed. Like you have to open it up in something just to get to the data. Hated that. So we made Soundabout." Arjen (37)

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API 5500 Dual Equalizer

Reinventing the 550 Classic With the 2520 Amp

The musical-sounding API 5500 Dual Equalizer embodies more than 40 years of tradition, beginning with the original 550 console equalizer module designed by Automated Processes Inc. founder Saul Walker. The 550's circuit design—an industry first in the 1960s—and the all-discrete Class-A/B 2520 amplifier are both featured here. Bottom line: The 5500 is as close to a pair of the original 550B modules as humanly possible.

GET ON THE MIX BUS

In my first tests, I simultaneously fed audio from my Pro Tools HD rig to a pair of vintage 550Bs in a Lunch Box and the 5500. I listened to finished mixes, individual instruments and vocal tracks using two identical stereo buses in a pristine and well-maintained 1970s vintage API console. After calibrating the buses and units with test tones, I found the old 550B units to sound darker—even merely switched in with no boost/cut applied. This overall

serious carving if they are to fit and compete within a thick pop music track. I used a Neumann U67 set to cardioid and without the roll-off or attenuator. The 5500's two mid-band sections let me boost +2 dB in the 700Hz area and cut -4 dB at 180 Hz to allow space for the low strings. That left the high band set to +2 dB at 12kHz shelf for additional shininess and the low band set to -6 dB at 30Hz shelf for filtering A/C and traffic rumble. After careful mic positioning on a jumbo-bodied



DOUBLE YOUR PLEASURE

The 5500 has two 4-band API 550B equalizers mounted side-by-side in a single-rackspace, steel-and-aluminum case. Each of the four bands has seven frequency choices (28 total) spanning five octaves and up to ± 12 dB of maximum boost/cut in 2dB steps. Both the low- and high-frequency bands are switchable from bell to 12dB/octave shelving filters.

The new Range control broadens the 5500's utility to include mastering applications by changing the four bands' boost/cut steps from the original 2 dB into either 1dB or 0.5dB steps. These additional ranges are exactly like the 550 variants that were custom-built for mastering rooms: the API 550D with ± 1 dB steps and the 550M with ± 0.5 dB steps.

The internal hand-built construction is strictly pro with a linear power supply for the ± 16 -volt rails, single-thick PC board, and positive-feeling rotary and military-grade pushbutton switches. No integrated circuits are used; gain comes from two hand-built 2520 operational amplifiers in each channel. The 5500's electronically balanced input is via a single 2510 op amp, while an API 2503 output transformer provides levels up to +30 dBm before clipping. If you prefer more "color" from iron, you can order an input transformer that provides true galvanic isolation from the outside world.

darker sound was consistent throughout my comparisons, but because I had only two 550Bs, this is all inconclusive. In contrast, the 5500 was transparent—no hearable change from Bypass to In without boost or cut. The 5500 uses a relay with silver contacts in a hardwired bypass system that prevents power turn-on thumps or loss of throughput in the event of power failure.

As compared to most other EQs, equalizing full program mixes with the 5500—everything sounds API-good right away. I didn't perceive any loss or change when the 5500 was inserted into any processing chain, and I couldn't believe I'd hear just a 0.5dB change!

I used the Range switch like a depth control by first setting it to x1 (meaning ± 2 dB steps) to quickly find frequencies of interest, and then down to 1 or 0.5dB steps for just the right touch-up. Boosting at 15 kHz or even 20 kHz is smooth and glorious, although you will want to check your digital peak meters for occasional overs. Always a good test of an EQ, boosting +4 dB at 40 Hz on a mix proved the 5500 to be the clear winner with a much tighter bass sound as compared to the vintage 550Bs.

SOLID INSTRUMENT EQ

Recording acoustic guitars necessitates

acoustic, I got a master-quality recording with classic API sound.

Equalizing individual drum mics proved the 5500 can get cranky, too. I wound +9 dB at 12 kHz (peak) on a well-used Shure SM57 snare drum mic. The drum had an old and badly flogged head, and the drummer was amazed at the sound I got. With that much boost, usually the source starts to sound more like the equalizer—not the case here. The snare drum was bright and open with lots of attack and punch. Kick drums with "boxy" peaks will easily benefit by notching in the 300 to 500Hz range and boosting at 30, 40 or 50 Hz.

NOUVEAU CLASSIC

As my first-choice equalizer for tracking, overdubbing and program, API's 5500 Dual Equalizer might be the most universal piece of gear in a single rackspace to come along. Its uncompromising design performed flawlessly, achieving the classic API sound and fulfilling my highest expectations of any equalizer, be it hardware or plug-in. Price: \$2,995; includes a five-year warranty.

Automated Processes Inc., 301/776-7879, www.apiaudio.com. ■

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

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Retro Instruments Sta-Level Compressor

Replica of '50s Legend With New Options

The Retro Instruments Sta-Level improves on the original '50s Gates Sta-Level via some critical components and added adjustability, while staying true to the original unit's best traits.

For instance, Phil Moore, the designer of the new Sta-Level, uses a custom-wound, copper-and-steel shielded output transformer, along with a custom power transformer. According to Moore, the input transformer is a high-quality Cinemag product by Altec transformer guru Tom Reichenbach. The resistors are carbon film instead of the original carbon-composition types, providing quieter operation and reliability in the Retro.

The tubes that ship with the unit are the readily available 6BJ6s, but you can add a 6386 to replace the pair of 6BJ6s or run them in parallel to average out individual tube imbalances. The 6386's socket is on the back and easily accessible. All tubes are selected for proper biasing, noise and matching. The back also carries an RCA socket for strapping together multiple units.

DYNAMIC CONTROL

As simple as it looks, the Sta-Level is surprisingly versatile due to its internal and external attack/release adjustments. On the outside, the Recovery knob does just as you'd expect—it sets the recovery time of the compressor after the signal slips below the threshold. The original Sta-Level's recovery time was said to be measured in weeks, but this handy addition makes the new unit much more usable.

On the inside, behind the easily opened, hinged front panel, a rotary adjustment calibrates the VU meter and a three-position toggle picks your attack/release poison: Double, Single and Fast. Double is program-controlled attack/release that builds density without pumping, much like the original Sta-Level. Single produces slow attack and release, with the needle seemingly painted in position. This mode changes the operational feel of the release control. Lastly, Fast performs much like the Fairchild 660, combining program-controlled release and fast attack. This mode tends to put the lid down on transients quickly and is the least



transparent of the three modes. To make it even more interesting, the Recovery knob is active no matter which of the three modes you pick.

MAKING MAGIC

My first listen to the Sta-Level was as an insert compressor across a Mojave MA-200 microphone placed as a mono overhead about six feet back from a drum kit in a medium-sized room. The Sta-Level was set with a medium-slow recovery time (about 11 o'clock on the dial) and represented the kit nicely in the room. As you would expect, the compressor brought up the room detail but with a very relaxed attack (set to Double) and release, making it almost transparent—of course, not so transparent that you didn't know it was compressed, but the Sta-Level's overall touch on the track rendered an in-your-face kit with some tube grunge. To hear this, visit "Online Extras" at www.mixonline.com.

The relationship between the Sta-Level and a vocal is nothing short of love. It gives the track that certain something that says, "This is a record." I first heard it on a percussive and very dynamic rap vocal. After setting the unit to Double attack with the recovery at 11 o'clock, the vocal sat down in the mix, letting me tuck it lower than I normally would without losing audibility. It worked equally well on another vocal track in series after an 1176 that was set to grab just the attacks. The Sta-Level literally cemented the vocal to the track, making it sit perfectly in the mix.

I could really see the benefits of the three-position attack switch using the Sta-Level across an acoustic guitar recorded at a medium tempo with a Shure SM7 mic through an SSL 4000 G+. In the Fast position, you could really hear it pumping, which didn't fit the intended application. At

the Double setting, the attack was slower, but pumping was still in evidence. The Single mode was just the ticket: The guitar stayed put in the mix, sounding incredibly smooth and in-your-face.

What was especially amazing is what the Sta-Level did to an acoustic guitar recorded with a single Avantone AK-Type VII mic. The mic sounded very good on the guitar but was a bit tubby at the bottom end. It may have been a placement issue, but it was already on tape and needed help. Once the Sta-Level was put across the insert with about 5 dB of gain reduction at the Double setting and Recovery set so it was very relaxed, it completely changed the sound for the better. It brought out a nice, silky top and tightened up the bottom end, taking out the boxiness.

I'VE GOT A CRUSH

The Sta-Level defines creamy smoothness when it comes to tube compression. I've used it on a number of sources, from a lowly hi-hat to a lead vocal, and each time its personality makes you want more. I can't say enough about using the three-position switch with the Recovery knob. It makes this compressor eminently usable on almost anything you throw at it. If that type of control isn't enough, you can dink with the tubes by plugging in a 6386 at the back and add that flavor to your mix.

One warning is that this unit needs to warm up for a long time to sound optimal. I first heard it after an hour of warmup, and it sounded even better three hours later. My only regret is that I wish I'd had two to units to throw across the stereo bus. Price: \$2,350.

Dist. by Vintage King Audio, 248/591-9276, www.vintageking.com. ■

Kevin Becka is Mix's technical editor.

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Schoeps CMIT 5 U Shotgun Microphone

A Welcome Addition for Dialog, Music Applications

For nearly 60 years, Schoeps has been a leader in small-diaphragm microphone design, offering a dazzling array of mics and capsules to fit nearly any recording/production situation—except one. For decades, Schoeps did not make a shotgun mic. The company's position was that such ultradirectional designs compromised the signal too much, and the company instead referred customers to its more conventional supercardioid models, such as the CCM 41 and MK 41 capsule.

Schoeps re-examined the shotgun microphone issue, and the result is the CMIT 5 U (Condenser Microphone with Interference Tube), essentially a short shotgun design in a compact, integrated (non-modular) package. The mic's aluminum body has a distinctive, bright-blue anodized finish, setting it apart from other Schoeps models.

IN THIS CORNER!

The CMIT 5 U measures slightly less than 10 inches long and weighs just 89 grams (about 3.14 ounces). The XLR output is gold plated, and Schoeps took this ordinary connection a step further by placing a round gold insert at the back of the jack to provide additional protection from the stray RF that frequently occurs on location.

The CMIT 5 U's 21mm (about ¾-inch) body diameter does not fit mounts and accessories for the Colette and CCM Series. However, Schoeps' distributor, Redding Audio, also handles Rycote and offers a full line of location recording adjuncts, including the \$110 Softie, a small furry shield that covers the mic's front end; the M2 pistol-grip suspension; the industry-standard modular (zeppelin) windshield; and Windjammer furry cover (the latter three are a \$695 package); and more.

Inset into the mic body are three switches for selecting HF emphasis (+5dB boost at 10 kHz), a steep low-cut filter (-18dB/octave at 80 Hz) and a gentle low-cut filter (-6dB/octave at 300 Hz). Built-in LEDs indicate the status of each at a glance, which is useful in dark locations, although for some reason, green equals off and red equals on. Aside from that, the controls are recessed enough to avoid accidental switching while accessible enough to change when wearing

gloves. The tonal switch settings are saved even after the mic is powered down, which is convenient when the CMIT 5 U is blimped inside a windscreen.

TESTING 1...2...3

Over a period of months, I used the CMIT 5 U in a variety of recording situations, both typical and atypical for shotgun mic applications. Clearly, the main market for this mic is film/video location recording. You have to feel it to believe it, but its ultra-lightweight design will quickly be appreciated by anyone working hours capturing dialog on a fishpole mount.

The mic has a fairly even frequency response: essentially flat (within ± 2 dB) from 100 to about 12k Hz, with a slightly rising HF character that extends to 15 kHz and then tapers off to 20 kHz. On the lower end, it has a -3dB down point around 70 Hz, but extending with usable LF down to 40 Hz. In this test its HF emphasis setting added a smooth boost that was perfect for increasing "reach" and adding intelligibility to vocal tracks without becoming edgy or shrill. And wind noise was no obstacle, given the combination of the HPFs with any of the multiple windscreen options.

When recording dialog tracks, I found the CMIT 5 U to be far more directional at mid- and high frequencies (like other shotguns), but I was more surprised by the similarity of its HF and MF directivity. Additionally, the mic's off-axis response is superb—even 60 degrees away from the center axis, the mic sounds consistent to the on-axis source—although slightly attenuated. This provides a more forgiving approach that offers increased latitude for the boom operator. The mic has a self-noise spec of 14 dBA (with filters off)—slightly lower than that of the MK 41/CCM 41 and competitive with other pro shotguns—so noise was not a factor, even when boosting tracks to normalize dialog levels.

I also tried using the CMIT 5 U in an unconventional studio setting as a snare mic. I mounted the mic on an overhead boom that pointed downward toward the snare, but at a height that was level with the overhead mics. The CMIT 5 U had



no problems handling the SPLs, and its directivity offered good isolation from the rest of the kit. As the mic was coincident with the overheads, the sound when all of the mics were combined was full and powerful—very cool!

One caveat: Without a shock-mount, the CMIT 5 U is susceptible to handling noise—either directly from the hand or transmitted through the cable. This is especially noticeable at the high-gain settings often required to grab distant dialog. Here, the 80Hz highpass filter and Rycote suspensions are essential, but I'd strongly recommend Rycote's Connbox 1, a \$145 option (shown above) that isolates the mic from cable-borne noise.

THE WINNER IS...

With the CMIT 5 U, Schoeps has delivered a winner—a solid performer that sounds great and might just change the way you think about shotgun mics. The real surprise was its sound, which resembled what you'd get from a good studio condenser rather than a shotgun design. That said, the CMIT 5 U is ideal for live music recording, yielding a smooth sound that brings you closer to the action onstage (less room sound), while avoiding the thin or nasal character that usually results when recording music with shotguns. Price: \$1,795; includes wooden storage box, foam windscreen and stand clip.

Schoeps, dist. by Redding Audio, 203/270-1808, www.reddingaudio.com. ■

George Petersen is Mix's executive editor.

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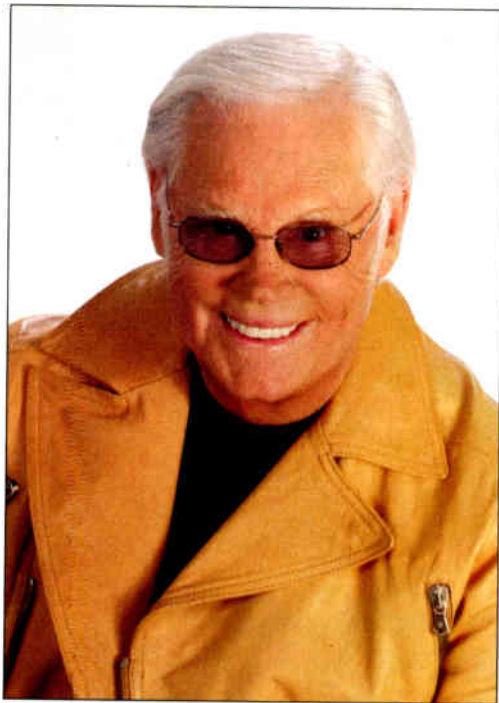
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GEORGE JONES AND MERLE HAGGARD

CLASSIC COUNTRY, WARTS AND ALL

By Elianne Halbersberg

When it comes to laying the cards on the table, few can do it like Merle Haggard and George Jones. They built their careers on straight-shooting lyrics and uncensored opinions, particularly about Nashville, as well as the music industry in general.

Twenty-five years ago, Haggard and Jones entered the studio to make their classic album *A Taste of Yesterday's Wine*. Legends already, they continued their successful solo careers, enjoying hit records, sold-out tours—and a few speed bumps along the way. Last fall, the two reunited for *Kickin' Out the Footlights...Again*, a concept album of sorts in that it presents the two performing each other's songs, in addition to four duets of old and new material. Music Row has changed dramatically since their last joint effort, but Haggard and Jones remain the same: two unmistakable voices that don't hold back when creating real country music or talking about it.

So why wait a quarter-century to get back together? "I honestly wish we hadn't waited so long because it was a lot of fun being in the studio doing both albums," says Jones. "I think Merle feels the same way I do—we don't like the fact that mainstream radio doesn't play us but a lot of 'Americana' stations do, and we still have our crowds on the road. Traditional country fans know what real coun-

try is supposed to be, and regardless of whether or not radio wants to play us, we have people wanting to see us that much more because they don't hear us on the radio."

Haggard adds, "I want to increase the airplay and George does too. But we've got to be thankful for the airplay we *have* received over the years, and even now there's a light at the end of the tunnel: A radio station in L.A. went totally 'classic country.' It's happening in the U.S., and I've got to say that if it happens that whoever pushes the button on the other stations doesn't want me, so be it. There's XM and Sirius, and all the new conditions they'll have to deal with. People are tired of force-feeding. I think the public will somehow rise up and take over."

When it came to recording their second album, selecting tracks from each other's remarkable catalogs was no easy task, but the outcome is a unique spin on familiar material, as well as a chance for the original artists to listen to their own classics with a new perspective. "The songs are refreshing when you hear somebody else sing them," says Jones. "When I heard Merle do 'She Thinks I Still Care' and 'The Race Is On,' it brought a new feeling to the songs. I started listening to what the songs are really saying, instead of the routine of being on the road and doing them night after night. I got a different feeling, but a good feeling."

"I know at least 40 of his songs, and he could do the same with me," adds Haggard. "My best performance is 'Things Have Gone to Pieces,' and 'Window Up Above' is pretty nice. His best are 'Sing Me Back Home' and 'The Way I Am.' 'All My Friends

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FIVE FOR FIGHTING

JOHN ONDRASIK FINDS HIS NICHE

By Blair Jackson

The “group” is called Five for Fighting, a term that comes from the world of hockey, as in a five-minute penalty for fighting. But in truth, Five for Fighting is, for all intents and purposes, one man: singer/songwriter John Ondrasik, who’s more likely to get five for being sensitive than for high-sticking. (Okay, jokes aside, he *is* a serious sports fan; so much so he writes a column on hockey for *Sports Illustrated*.) Over the course of four albums since Five for Fighting’s 1997 debut album, Ondrasik has established himself as an artist with a distinctive songwriting (and actual) voice. He’s been variously compared to Billy Joel, Elton John and other piano-based artists he freely admits were influences, but he has also succeeded in carving out a niche of his own—his sound is instantly recognizable.

It was twist of fate that first thrust Ondrasik, a Southern California native, into the pop mainstream: After the terrorist attacks of September 11, 2001, Five for Fighting performed a tender, bittersweet ballad called



“Superman (It’s Not Easy)” at the Concert for New York City, and the song immediately took off and became a multiformat hit, propelling the 2000 album from which it was drawn, *America Town*, to Platinum status. Ondrasik has built on that devoted fan base ever since, and put out two more albums: *The Battle for Everything* (2004) and the latest (and in my view, best) Five for Fighting opus, *Two Lights*. The album



has already spawned one adult pop/AAA hit, “The Riddle,” and there are a number of other excellent songs that could find their way onto various types of playlists, from the anthemic “Johnny America” to “World,” with its philosophical musings, or his beautiful ode to his young daughter, “I Just Love You.” It’s a richly textured affair, with unobtrusive strings gliding through many songs, tasteful guitars and the solid keyboard underpinnings that so nicely match Ondrasik’s vocals, which stretch from a baritone to an effective falsetto in great swoops.

“It was a really hard record to make and I’m proud of the fact that we did it ourselves,” Ondrasik says by phone one late-fall afternoon from San Diego [Calif.], where he and his four-piece band were gigging. Ondrasik has always been interested in recording and has been more and more involved with the making of each of his albums.

“The first record I made, *Message for Albert*, came and went because EMI Records closed. On your first record, you’re just so happy to be there; you’re not necessarily paying attention to engineering or crafting or production. I was just thrilled to be making a record. When I made *America Town* with [producer and multi-instrumentalist] Gregg Wattenberg, it was one of those very low-budget records. We were going into the studio at two in the morning just to get

the low rates and we spent a year doing it by ourselves. The mics were breaking; we had a lot of bugs. We did it in various studios—like Mad Dog in Burbank. We had no money and we were just kind of swimming upstream, but we didn’t know any better. That process of being in the studio and crafting songs was like breaking the ice.”

Some high-powered mixers, such as Bob Clearmountain. Frank Filipetti and Jack Joseph Puig, were brought in to polish some of the tracks on that disc, “but that came after the fact,” Ondrasik says. “When the label smelled a hit, they brought them in.” And the success of “Superman” justified their investment.

“Then the next record, after I’d had a little success, was completely opposite,” Ondrasik continues. “Budget was not an issue, and we got to do whatever we wanted, so we ran up to one of the masters, [producer] Bill Bottrell, and I learned a lot from Bill. Without him, I don’t think I could’ve produced this new record myself. Being a producer, but also a songwriter, a musician and engineer, Bill understands all those aspects and the process of cutting song by song—it may sound a little trivial, but it’s a huge difference from spending two weeks cutting drums, two weeks cutting guitar, do vocals and mix. Bill’s process was put the band in the room, get a wonderful headphone mix so you’re inspired and then go for it—you really feel like you’re

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JOHN COUGAR MELLENCAMP'S "PINK HOUSES"

By Heather Johnson

Early one summer morning in 1983, a 32-year-old John Mellencamp, dba John Cougar, drove himself home to Bloomington, Ind., from the Indianapolis airport. He had won an American Music Award for Favorite Pop Male that year, as well as his first and only Grammy Award—Best Rock Vocal Performance, Male for "Hurts So Good" from his multi-Platinum breakthrough album, *American Fool*. After seven years of playing to near-empty dive bars, dealing with shady managers and having his name changed behind his back, he had finally achieved quantifiable commercial success.

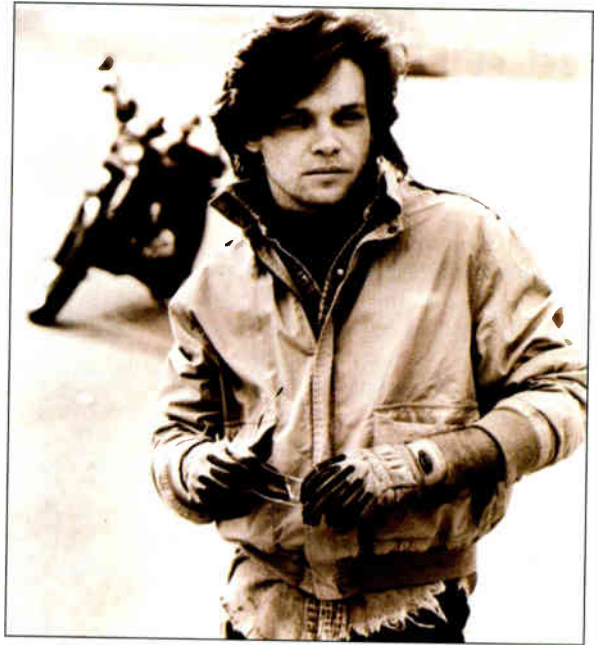
As he cruised along an overpass, he looked down and saw a black man sitting with a cat in his arms on the front porch of his weathered, pink shotgun shack. The Interstate ran within feet of the man's front yard, but he didn't seem disturbed by the commotion around him. "He waved, and I waved back," Mellencamp told *Rolling Stone*. "That's how ["Pink Houses"] started."

Mellencamp, still learning the craft of songwriting and arranging, sat down with a tape machine and described the man, and didn't stop recording until he had "Pink Houses" fully written. More song ideas came just as quickly. Propelled by this creative surge, he called up producer/engineer Don Gehman, who had worked on *American Fool* and the largely forgettable *John Cougar* album, to come and record his next album.

Mellencamp, guitarists Mike Wanchic and Larry Crane, drummer Kenny Aronoff and studio bassists Willie Weeks and Louis Johnson (standing in at various times for newcomer Toby Myers) headed to The Shack, an unfinished, rundown farmhouse between Brownstown and Seymour, Ind. Mellencamp's sister, Laura, and her husband-to-be owned the house and the hog farm it sat on, but ran out of money before they could finish renovating their home. Mellencamp agreed to lend them the money on one condition: that he could first use the space as a recording studio. The John Cougar-produced *Never Kick a Sleeping Dog* album by Mitch Ryder served as a test run for The Shack to see if recording on native soil would work better for the devoted Midwesterner, who felt too crazy and distracted in fast-paced L.A. and wanted to be close to his friends and family.

With the help of Criteria Recording's chief engineer, Ross Alexander, and staff engineer Greg Edward, Gehman gutted the Miami studio's mobile unit and moved its equipment—an MCI console, 16-track tape machine and a few other items—into The Shack's kitchen, which became the control room. They blew a hole in the wall so that they could see into the living room, now the live room, put up a little bit of drywall to create a drum room and iso booth, and away they went.

"Since it was being taken apart after recording, there was no need to make it pretty, and it wasn't," recalls Grammy-winning engineer David Thoener, a 29-year-old New Yorker at the time, who was called in to engineer and mix alongside Gehman. "The air-conditioning ducts were hanging out of the



ceilings; it was quite a sight. But it had an amazing sound."

"The control room was so small you literally couldn't turn around," adds Wanchic. "You had to just pick your spot and plant!"

By recording in this underdeveloped home studio (a precursor to Mellencamp's professionally built Belmont Mall recording facility, also near Bloomington) in rural Indiana, the group could isolate themselves from society, but not from the animals in the back yard. "The smell was unbelievable!" recalls Wanchic. Thoener remembers eating lunch outdoors while the pigs milled around and breaking for dinner at a nearby greasy spoon.

"Pink Houses," thank goodness, featured the inner ambience of The Shack. "There is no reverb on the drums; that sound is only the living room," says Thoener. "John's tracking vocal was recorded in the same room. We used gobos with Plexiglas windows, put John in a corner of the room and made a triangle. He stood there looking at Kenny and the entire band. Everyone was in the same room. The backing vocals were an overdub, but recorded in the same room, so the ambience on those vocals is also the living room." One instrument bled into another in the ramshackle recording environment, giving Mellencamp the raw, Rolling Stones-influenced sound he wanted.

Mellencamp sang with the band in his isolated corner, probably into a Telefunken or a Neumann, as Thoener recalls. The engineer set up Aronoff's drums in the opposite corner, and Wanchic and the bassist on opposite sides facing the kitchen/control room. Crane stayed in the control room, but his amp was miked in the bathroom. Wanchic's amp and the bass amp also went into separate isolated rooms elsewhere in the house.

Working from 10 a.m. to midnight, they recorded "Pink Houses" in one day and finished the entire album in 16. "Sometimes it just falls together, and sometimes you beat your head against the wall for a week and you end up with babble," says Wanchic. "We were smart enough, or at least we thought

so, to know the difference.”

“Think fast, make mistakes,” was the credo for this album, which was a radical departure from the labor-intensive *American Fool*. “We just decided to go out there and make the rawest, most natural-sounding, off-the-cuff, first-impression record that we could come up with, and we did it very spontaneously,” says Wanchic. “First ideas were exploited heavily, and it was done with great vigor and aggression.”

“Don’t let me go back and touch any of these songs, even if I want to,” Mellencamp would tell Gehman and the band.

Gehman kept many of the original lead vocal takes, with Mellencamp going back later only to fix a line or two. “He is meticulous, but you can’t deny a great performance,” says Thoener. “If you’re lucky to get it on the live take, you’d be a fool to not recognize it and keep it. He’s always after his best performance and not one for punching in syllables.”

As with the previous Mellencamp/Gehman collaborations, Gehman’s presence was integral to the success of this off-kilter recording session. Aside from being an excellent engineer, he also had a calming influence over the hotheaded young artist. He wasn’t intimidated by his client’s demanding nature; he served as a sounding board for Mellencamp’s ideas and kept him from going too far over the edge.

But Mellencamp also pushed him and his band by taking them to unfamiliar and unconventional territory. For *Uh-Huh*, Mellencamp wanted to call forth a sound that wasn’t just aggressive-sounding, but was irritating and aggravating, the very opposite of the clean and more pleasant sound of his earlier records. Recording in a half-finished house with wires covering the floor and minimal equipment was one way to instill some of the tension that would lead to this rough-and-tumble sound. “Because of my background in live sound, I was accustomed to moving equipment in and out, wiring things up and making them work,” says Gehman, who got his start as a sound engineer for Clair Bros. “Getting used to what an environment does to you acoustically and making judgments [in that environment], I knew nothing about. I’m out in the boonies, with gear that I’d rented in some acoustic space where I really couldn’t hear anything, and then he wanted me to create something that I had never done before. Everybody was pushed to this place where they’re teetering.”

Recording the Ryder album helped Gehman and his tech staff work out some of the kinks with The Shack before beginning *Uh-Huh*, which is one of the reasons the ses-

sions went relatively smoothly and quickly. After 16 days at the hog farm, Gehman and Thoener mixed the album at Cherokee Studios in L.A., the same studio where Mellencamp had recorded *Nothin’ Matters and What If It Did* and parts of *American Fool*. PolyGram then turned over *Uh-Huh* to Bob Ludwig for mastering and released the album in late 1983. A photo of The Shack appears on the back cover, while the front introduces the artist’s real surname—Mellencamp—to the record-buying public for the first time.

Sometimes it just falls together, and sometimes you beat your head against the wall for a week and you end up with babble. We were smart enough, or at least we thought so, to know the difference.

—Mike Wanchic

The album shipped Gold and was certified Platinum five weeks after its release. “Pink Houses,” its second single, reached Number 8 on *Billboard*’s pop singles charts, and ultimately became an American anthem for the working class. Even though the song’s underlying message says, “the American dream ain’t all it’s cracked up to be,” its catchy chorus got the attention of then-President Ronald Reagan, who wanted to use the song for his 1984 re-election campaign. Mellencamp, a life-long liberal, refused.

The artist known authentically as John Mellencamp since 1991 admits that despite the song’s ubiquitous nature in the U.S. of A., he still cringes a bit whenever he listens to the words. “When I hear ‘Pink Houses’—on the radio and when I sing it—I think, ‘Damn, I should have taken 10 more minutes on that ending,’” he said in an interview with the *Washington Post*. “I don’t like the lyric ‘And the simple man pays for the bills, the thrills, the pills that kill.’ The song was so on the money until that last verse.” ■

Born in a Small Town: The John Mellencamp Story by Mix contributing editor Heather Johnson will be published by Omnibus Press in November 2007.

GEORGE JONES AND MERLE HAGGARD

FROM PAGE 100

Are Strangers’ is wonderful. It’s an interesting album to listen to. I enjoyed it myself, and I don’t listen to my own music. I wasn’t there when George cut my songs [Haggard cut all his tracks in one day], but he was there when I sang his, and he was highly happy. He worked a tour, came back, did his tracks and I heard the finished product. He blew me away.”

Putting the project together and taking it from studio to CD required not only a master producer and engineer, but also individuals with an understanding of and genuine love for the heart and soul of this sort of traditional country music. Jones called upon Keith Stegall, award-winning producer and songwriter, renowned for producing every Alan Jackson album (except *Like Red on a Rose*), and his longtime engineer, John Kelton. The team had worked with Jones on his *Cold Hard Truth* and *Hits I Missed... And One I Didn’t* albums, but it was their first time with Haggard.

“I recorded all the tracks over a couple or three days and sent them to Merle,” says Stegall. “Then he came to town and we cut a couple more tracks with two mics set up like they did it years ago. They were standing side by side, and it was incredible to look through the glass and see them. The studio environment was like a couple of old fishing buddies relaxing. They both have high levels of intensity, but like different colors of intensity—one might be blue and one might be green.

“Sometimes as a producer, you forget what you’re doing and get lost in the mechanics, then you pinch yourself and go, ‘Oh my God!’ In the back of my mind, growing up with traditional country, I thought it would be a high point in my career to someday record these icons; it so happened that it came together with this album. It was tough to try to be ‘normal’ around them because I’m in such awe of these guys. It was the first time I had ever really been around Merle, and to sit behind the console and suddenly hear that timeless voice coming through the speakers, and look and there’s the voice attached to the man.”

Stegall has a simple rule he applies in such situations: “When you deal with artists of that caliber, the best thing you can do is stay out of the way but [still] be involved. All I wanted was to be able to capture it. I tried to let the process be as natural and unencumbered as it could be.

"The great artists I work with have such a strong sense of what they sound like and the record they want to make," he continues. "I put together the corresponding players and re-create that. Merle and George can do whatever they want, but there's an identifiable sound to both of them and my job is to stay close to that and gently nudge them if necessary—in my passive-aggressive way! I'm not a fan of punching lines in because people fall out of character. I would rather keep the imperfections so it feels like a performance."

From Haggard's perspective, "Keith is young, energetic, has good ideas, good instrumentation and good ears," he says. "I don't know anyone who could have done it any better. He let me do whatever I did. I didn't know his ears, I had no opinion of him [going into the sessions] because I didn't know him, and it was important to me to have someone in the control room I know and who listens to me. I don't need someone from Nashville—I don't much trust anybody there—but I see what Keith did and I have faith in him. We now have a track record and we believe in each other."

The clinical sterility of contemporary country hasn't bypassed Haggard's discerning ears. "It comes from too much scrutiny; it's a production mistake," he says. "Reality doesn't allow for that much perfection. The warts and moles they shave off are the things people identify with and call your style. You could hear Elvis breathe on a record. Now they take it out as unnatural noise, extract the humanity and it sounds like an electronic, perfected piece of shit. I'd much rather hear an artist who can actually sing in front of a room with a guitar. Some of these artists go on the road and use tuners on the mic so they can't go out of pitch. That has nothing to do with talent, that has to do with bullshit."

To preserve those "warts and moles," Stegall relied on Kelton, his senior engineer and "right hand." The two met in 1987 when Kelton was engineering at Nashville's Studio 19. "John majored in cello in college and he has a sense of purity as to how things are miked and go to tape," says Stegall. "He's very organic, with a mind from another planet as far as how to mix, so you feel like you're listening to a band in your living room and it's not squished or EQ'd."

"Before we track, he gives me all the options, and on something like this I wanted analog," Stegall continues. "So I bought the rest of the analog tape that was left in Nashville—I got all I could and stuck it in a room in my studio! Then they transferred



*Merle Haggard (left) and George Jones work on one of four duets on *Kickin' Out the Footlights...Again*.*

it from analog to Pro Tools so we could work a little easier. The album was done at Starstruck, Reba McEntire's complex. We brought everything to my SSL room where the rest of it was assembled, then we went back to Starstruck for a couple of piano overdubs. I have an SSL G Series and Pro Tools HD and analog—a little old and new. John and I are partners and he put together what we needed in our chain. I put in big monster monitors, APCs, because I like the big sound when I listen back."

"The board was an SSL 9000 J and Starstruck has a good bit of outboard equipment that we used, too," Kelton says. "For tape we used a Studer 827 16-track for the drums and bass and a Studer 827 24-track for everybody else. That was fed into a Pro Tools HD system. I mixed on an SSL 4056 G+ at Keith's studio and mixed to the new 900 [tape] that used to be the Emtec; this is the first thing we've done on it. We used the Ampex ATR-100 half-inch. For mics, Merle was an old Neumann 47 into a Martech preamp and LA-2 compressor that was hardly used at all. George was an older-stock U87 into a Martech into a Teletronix LA1 compressor that we've used with him for a while. There was no EQ on either one of them."

The setup, says Kelton, was specific for Haggard and Jones. "The way we ran the tape was a little different from what I'd normally do. The 16-track was actually being sub-mixed to three tracks on the 24-track, so should anything need to be punched in, we wouldn't have to wait for anything to lock in. I've done this in the past, when you want more than 24 or 16 tracks of analog and you don't necessarily want to wait for

the machines to lock up when you're doing quick punch-ins."

Like Stegall, Kelton was excited about the project and was willing to stand back and let the magic happen naturally. "I just stay out of the way," he comments. "That's the smartest thing I can do. I set them up in the room with the players and no baffling between them. The drums were in a smaller booth and the room was open for their singing. Everyone was pretty close together, all playing together. This was the first record I've done that way. Usually, singers cut with some kind of isolation around them."

"This experience was one of those things where if they can pull it off and it works, it's great," Kelton continues. "If things bleed or need to be fixed, it can become a nightmare. The beauty of Merle and George is they're always 'on' and there was no trouble at all. I can't think of anything that got punched in. If there was any bleeding, it just became part of the sound."

Recording technology continues to expand at a steady clip, but for pros like Haggard and Jones, it's the same picture in a new frame. "It's like all golf courses are different but the same," says Haggard. "You start at the first hole and end up at the 18th. There are different ways to make records, but it's still all about what goes in the mic and what it sounds like coming out the other end. The way they do it now and the way we did it years ago is different to the people who make the records, but it's the same to the artist. You go in and do it and hope they don't alter it from reality too much. I'd rather have those warts and moles." ■

FIVE FOR FIGHTING

FROM PAGE 101

making the record as you're recording. You're locked up in the middle of nowhere up in Mendocino [several hours north of San Francisco]. He put a studio in an old paper-manufacturing plant. The board was in the room, and we cut it song by song and the red light was always on.

"I learned so much from that process, and that's one reason why this record was such a challenge. This time around, there *was* no big budget—big budgets don't exist any more, no matter how many records you sell, and I was intent on having the same process, where the band was in the room, we were always recording, we would take a few days on a song, have the ability to go back to the drawing board, revisit songs, cut 20 songs and have a six- or seven-month process, which frankly you can't do in a \$2,000 room at Ocean Way anymore. I had to buy my own studio. I spent a year searching and scouring for gear, and I found a room up in Ojai [near Santa Barbara] that had a great old Neve board, vintage 1073 [mic pre's], a great bunch of outboard gear, including a stereo Fairchild compressor, and an incredible mic collection.

Producing vocals was the hardest because I'm in the booth singing at a time when you want to be thinking about nothing but projecting the song or interpreting the song, but there's the little guy with the hat on in the back of your mind saying, "You're overselling it; you're a little out of tune; maybe we can comp that with the previous vocal."

—John Ondrasik

I ended up buying the whole thing. So we pulled all the 1073s out, racked 'em up, but we still needed a space [in L.A.]. Well, we had a friend who had a space called Revolver Studios in Westlake, so we went in there, built a piano booth, brought all the gear in and we set up. We were no longer hostage to the high day-rate. We took the band there and spent six months making that record. We ended up sort of producing it ourselves by default. Bill [Bottrell] was busy, so we just kind of started and went from there.

"Producing vocals was the hardest," he continues, "because I'm in the booth sing-

ing at a time when you want to be thinking about nothing but projecting the song or interpreting the song, but there's the little guy with the hat on in the back of your mind saying, 'You're overselling it; you're a little out of tune; maybe we can comp that with the previous vocal.' When I was producing other musicians, it was a little easier, but it was still hard beyond the logistical side of production—the emotional side, writing the songs, the crafting of the record; it was really tough. Of course, the positive side is your vision is undiluted.

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tations are, and I know I'm not a good engineer, and [bassist and guitarist] Curt [Schneider] *can* engineer, so that took a big weight off my shoulders. Then there were a couple of songs I thought we didn't get all the way, so Mark Endert came in and not only mixed the record, but also helped produce a couple of songs."

Ondrasik says that some songs were virtually live takes, while others were "crafted to death. 'The Riddle' is one: Every kick drum is placed, but it started as a piano/vocal demo. It had a good vibe to it, so we decided to build on it. You have to be prepared to go both routes. You can spend a lot of time chasing that magical demo, but you can't recapture magic. You can get maybe 80 percent of it. That's why you have to be set up to get it all."

In this case, it was having Pro Tools running constantly—recording every idea from beginning to end—that gave Ondrasik the options he needed to construct the record he wanted. "We could never have made this record without that technology," he says. "What we did was all three of us [Ondrasik, Schneider and guitarist Andrew Williams] got compatible HD systems, so at night Curt would go home and comp [Joey Waronker's] drum tracks, Andrew would do clean-up sessions and I would do vocals in my living room. Then the next day we'd all come in and we'd transfer all the files to everyone's hard drives. Economically, logistically, time-wise, we could not have done it without that ability. We probably saved a week in rewind time alone," he says with a laugh.

As for the strings on this and other Five for Fighting albums, Ondrasik says he was influenced by the work of such arrangers as Paul Buckmaster (the early Elton John records), Bob Alcivar (Tom Waits' *Heart of Saturday Night*), George Martin (The Beatles) and others.

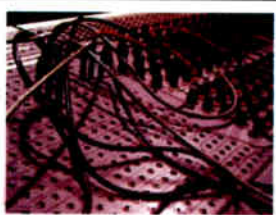
"It's always a dangerous road to walk because it's so easy to go over the top—this record in particular," he notes. "Because there were so many strings on it, I didn't want to go string crazy. So how do you treat them? Some it's a combination of my demo [synth] strings with live strings. I try to arrange them all myself and then I sit back, and say, 'That's okay, but that one needs somebody better.' So that's when you take an arrangement to someone like David Campbell and he can embellish it for you. And I also went to Jorge Del Barrio, a Brazilian orchestrator I found through Bill Bottrell, for a couple of songs where I knew that strings were going to be crucial to the emotional content of those tunes. I'm really happy with how it all came out." ■

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L.A. GRAPEVINE

by Bud Scoppa

A wave of mortification swept over me on a late-fall evening as I approached the gleaming new home of Levels Audio Post (<http://levelsaudio.com>) at 1026 Highland Ave. in Hollywood for the facility's grand-opening party. Pulling into the line of Benzes, Jags and Beemers creeping toward the entrance of this high-tech Taj Mahal, I wondered whether the valet would scowl at the sight of my grimy 10-year-old Ford Explorer and wave me on. But he took my

into Mix 1, the biggest of Levels' five mix rooms, and managed to avoid spilling my cocktail on its centerpiece, a Digidesign ICON D-Control console—"the big boy," Riordan calls it—which allows him to do stereo and 5.1 mixes for both standard and high-definition telecasts. The other four rooms are outfitted with D-Commands, making this the first all-ICON post house in town, according to the proud owner. These impeccably appointed environments

PHOTO: EDWARD COLVER



Levels Audio Post's Mix 1a—one of five rooms in the elegant 13,000-square-foot complex

car, a smiling young woman admitted me into the party and I was handed an electric-blue cocktail in a martini glass as I tried to look like I belonged there. Once inside, it was easy to spot the host: Levels owner Brian Riordan was working the room like a spinning top, wearing the same sort of euphoric grin you see on the faces of new fathers.

Riordan's baby is a 13,000-square-foot shrine to state-of-the-art audio and video hardware, set off by mood lighting, brick walls, exposed beams and ultramodern furniture of his own design. I wandered

have the feel of contemporary recording studios, thanks to the design of renowned architect/acoustician Peter Grueneisen of studio bau:ton fame (now of nonzero\ architecture), but the theater-sized Sony 1080i HD projector on the far wall of each space and the Sharp Aquos LCD monitor mounted directly in front of each ICON console identify these rooms as high-end A/V workspaces.

The facility is also equipped with outboard gear from companies such as Avalon, BSS and TC Electronic, as well as

—CONTINUED ON PAGE 112

NASHVILLE SKYLINE

by Rick Clark

I'm sitting in a pub in Bolton, England, trying to finish my "Nashville Skyline" column. It's the only place in town where one can get a Wi-Fi signal, but it's hard to get work done when the locals find an American at a laptop an utter curiosity, and the pints of Guinness keep showing up at my table. I was taken when the whole place erupted in singing Bon Jovi's "Living on a Prayer" at football stadium/rock concert level to the blaring sound system in the place. I don't recall ever hearing that in the States, even when mullets were the craze. I've also been entertained by a hard rock version of Tommy Roe's "Dizzy." Ritchie Valens' "La Bamba" got yanked for Dexy's Midnight Runners' "Come on Eileen," and the whole place is singing again. This should set the tone for this month's column.

During the early '70s, I worked at Pop Tunes Records in Memphis, the largest record store and one-stop distributor in the South. While Memphis soul and rock music permeated the whole vibe of the store, it was hard to ignore the other universe of country music represented by Nashville, just up the road. I would walk up the country music aisle in the store and see all these artists dressed up in wild outfits on album covers. If working-class English rockers loved dressing up in fantastic garb that created a kind of glam reaction to their drab, working-class existence, then country stars were certainly making their own wondrous fashion statements. Porter Wagoner was one of the over-the-top kings of the pure country fashion aesthetic. I can't tell you how many times I looked at Wagoner's albums (and the duet album with Dolly Parton), and thought, "One day I'd love to meet these people." Thanks to working at *Mix*, I have been able to do that.

Parton turned out to be an absolute gem of a person (see August 2002 *Mix*), and when I recently got a call that Wagoner was going to be in the studio with Marty Stuart producing, I thought this was going to be a great session I should catch. Wagoner was always much more than a "fashion statement" in a designer

NEW YORK METRO

by David Weiss

Nudie suit. This was the guy who had delivered such hardcore country wonders as "Eat, Drink, and Be Merry (Tomorrow You'll Cry)," "A Satisfied Mind," "Company's Comin'," "Trademark" and a number of Top 10 hits. Wagoner celebrates his 50th anniversary as a member of the Grand Ole Opry this month. He also hosted *The Porter Wagoner Show*, which played to hundreds of markets and millions of viewers for 21 years. I remember watching Wagoner when I was a kid. It was the first time I saw Parton, whose regular appearance on his show helped launch her amazing career.

The Anti Records label celebrates authentic talents and renegades like Tom Waits, Bettye Lavette and Neko Case. Its sister label, Epitaph, has a long history with punk and alternative music. So it is an interesting statement that real hardcore country artists such as Wagoner are on these labels. But then again, the heart of the real rock and punk experience was always about flying in the face of inauthentic artistry and culture. So bring on the country, and bring on Wagoner's debut Anti effort, *Wagonmaster*. Album producer Stuart is one of the most talented people in Nashville, and he's plugged-in enough to know that someone like

—CONTINUED ON PAGE 114

Like Bentleys and Ferraris do for serious drivers, major recording facilities serve as an elite source of inspiration to musicians, engineers and producers. But their foundation in the music world, once solid as a rock, has shifted as the changing music business and production techniques wreak havoc on their business model.

In New York City, these truths have spelled the end for some classic rooms (R.I.P. Hit Factory), but they have also led to original approaches in the fight for survival. In the case of two of Manhattan's other big rooms, Right Track and Sound on Sound, the move was highly unusual: a merger. First put into effect a little more than a year ago, in November 2005, the story of their quick transformation from fierce competitors to blood brothers now known as Legacy Recording Studios (www.legacyrecordingstudios.com) offers a revealing look into the evolving world of large studios in New York and worldwide.

Spearheaded by former Sound on Sound president Dave Amlen and former Right Track president Simon Andrews, the idea behind the merger germinated in 2004. Earnings were way off pace at the 11,000-square-foot Sound on Sound space on West 45th Street, and Right Track, headquartered in Times Square on 48th Street, was still reeling from a multimillion-dollar cost overrun incurred in constructing its masterful, 4,600-square-foot Studio A509 on West 38th Street.

"In June 2004, cash flow

was miserable," says Amlen candidly, now CFO/COO of Legacy. "Business was down considerably from the year before, and we'd fallen months and months behind on our rent. We had a new landlord in the building; they were not nice people and the previous 18 years of Sound on Sound there were meaningless to them. So we looked at our options, and the only one we had was to restructure: Do a Chapter 11 bankruptcy filing and have the federal courts protect us while we figured out a way to make things work and hopefully see the industry turn around.

"Meanwhile, back in 2001, Right Track had opened up their huge scoring room," Amlen continues. "The original budget was supposed to be \$6.5 million, but there were many complications leading to serious overruns, and when the whole thing was done, the budget came out to be about \$13 million. It put a severe strain on Right Track. During the next four-and-a-half years, the studio got further and further in the hole, financially.

"So two big companies in the industry had fallen on tough times for different reasons, and because Sound on Sound's filing was public, Simon made the overture to me. We had known each other for 16

—CONTINUED ON PAGE 116



Legacy's Chris Bubacz (left) and studio manager Matt Carter

PHOTO: RICK CLARK



Country legend Porter Wagoner recorded his Anti debut album at Omnisound Studios with producer Marty Stuart.

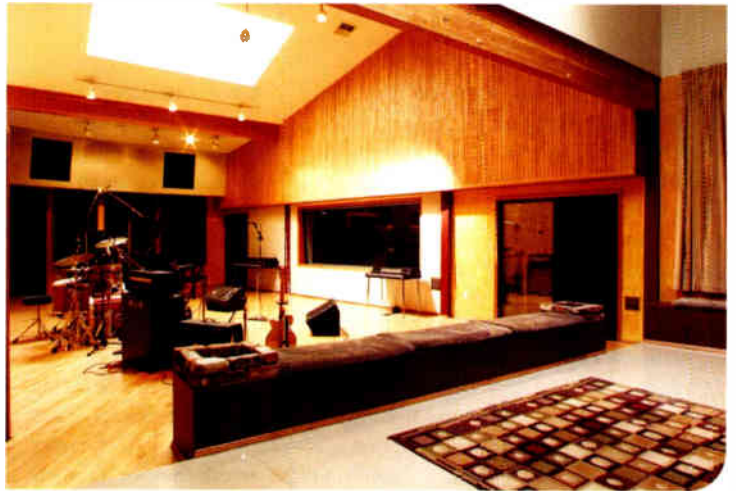
A YEAR AT LONDON BRIDGE SEATTLE STUDIO GETS NEW OWNERS, NEW LIFE

It's been a little more than a year since Seattle-based producers Jonathan Plum and Geoff Ott purchased the city's legendary London Bridge Studio (www.londonbridgestudio.com) from brothers Rick and Raj Parashar, and it's been quite an education and a boon for the new owners.

During the Parashars' tenure, the facility was essentially dedicated to co-owner/producer Rick Parashar's album projects. For nearly 20 years, he produced local and national bands in the 5,000-square-foot studio, which is centered on a 1970s-vintage Neve 8048 console. Producer and studio struck Platinum in the early '90s with the production of Pearl Jam's unforgettable debut, *Ten*. London Bridge became a recording Mecca for the burgeoning grunge scene, hosting Blind Melon, Soundgarden and Alice in Chains, among others.

But by the time the Parashars' lease came up for renewal in '05, Rick Parashar decided he'd had enough of the studio business and suggested that Plum and Ott—former London Bridge employees who had worked on many of those era-defining productions—take over the lease and buy out the business.

"It took us by surprise," Ott says. "It was like, 'Next month it's up, and they have renters for the space that can make it a Carpet Warehouse.' Jonathan and I both knew the studio and how special it is—the great tones and the history that it has. I put a lot of heart



The Geoff Turner–designed live room at London Bridge Studio

business, and both have developed excellent communication skills, as it's essential they both know about upcoming bookings and personal projects. "We were also in direct competition with each other as producers," Ott says. "But we were friends first, and we've been friends. We iron things out and have established a code of respect for each other."

In their early weeks as high-end studio owners, Ott and Plum upgraded the facility to Pro Tools HD and acquired a pair of Royer ribbon mics, an Alan Smart compressor and two Distressors, among other items. They also revived a piece of the studio's illustrious history: "The studio used to have a Studer 2-inch 24-track, but six years ago, the previous owner had ripped it out because they were done with analog," Plum says. "He snipped the cables from the remote control and put it in the garage, where it sat for five years getting dusty. One of the first things we did was revive that tape machine."

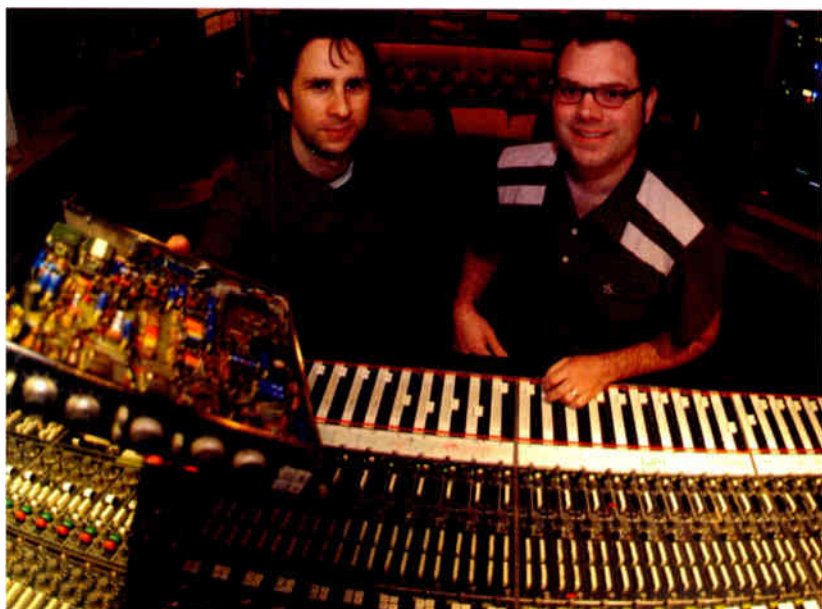
As an example of what owning a top-end studio has done for his career, Ott says, "One band I worked with this year was Tysen. They're a Christian rock band and they've had some good success. I was able to get signed on to the project and do it for a flat fee where I could utilize open studio time to mix. Before, I would have been stuck in the environment of a small studio—basically, a computer and a few mics—which is not as creative as having a big studio with all the tools, spaces and rooms."

London Bridge also hosts a good deal of orchestral recording, in part because, as Plum points out, the nonunion musician pay in Seattle is lower than rates in L.A. or New York, and because the studio is the only one of its size and location

with hardwood floors. Recent high points include the Dori Amarilio-produced sessions for ESPN's version of the Monday Night Football theme and the score for videogame *Lineage*.

"Compared to L.A. and New York, our rates are probably ridiculously cheap," Plum says, "but we have to stay relevant in Seattle. We'd like to charge more, but we also are really glad we can have great local bands record here."

—Barbara Schultz



Proud owner/producers Jonathan Plum (left) and Geoff Ott

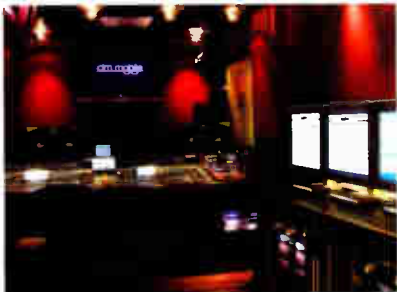
into my decision."

"We both were relatively established as local music producers, and we were doing just fine producing music without owning a studio," Plum recalls. "But we realized that being attached to a name like London Bridge and having the ability to use a facility like this certainly couldn't be bad for our producing careers."

Plum accepts the lion's share of responsibility for managing the

BEHIND THE GLASS

NEW STUDIO JDM LAUNCHES BELUGA TRUCK



The moody interior of JDM's new Beluga Truck

Producer/engineer/songwriter Jimmy Daniel's JDM Mobile company (www.jdmmobile.com) announced the launch of its new digital broadcast/recording facility, the Beluga Truck. The 40-foot remote studio is fitted with two complete systems, each of which includes a Yamaha DM2000V2 with Add-On effects, Pro Tools HD3 and Tascam X-48. The Beluga also features outboard from UREI, API and Empirical Labs; and ADAM S3A 5.1 surround monitoring.

Since the truck went online, it's been used for an impressive roster of high-profile performances for AOL, ABC-TV, VH1, XM Satellite Radio and more; artists have included The Killers, Nickelback, Widespread Panic and The Prodigy.

JAZZ IT UP BELLSON AT MAD DOG

The longtime Duke Ellington Orchestra drummer, Louie Bellson, recorded a 16-bar solo for the New Orleans Congo Square Charity at Mad Dog Studios in Burbank, Calif. The sessions—produced by drummer Fabian Jolivet and engineered by Eric Corne—are



Louie Bellson: a legend at Mad Dog

part of an ambitious project designed to trace the evolution of the African Bembe clave and its significance in the development of modern jazz.

NORTHEAST

At Blue Jay Recording (Carlisle, MA), producer Sean Garrett worked on a collaboration between Nicole Scherzinger (of the Pussycat Dolls) and Rihanna. Rich Mendelson engineered and Giles Christensen assisted...StarCity Recording (Bethlehem, PA) reports the acquisition of an ATR 104 1/2-inch recorder. The new machine was recently put to use on sessions with the Tyrone Vaughan Band, produced and engineered by Jeff Glixman...In Avatar (NYC) Studio A, Nicole C. Mullen recorded a new album for Word Records with producer Tony McAnany and engineer Roy Hendrickson; and Delfeayo Marsalis and Wynton Marsalis recorded music for the film *King Bolden* with engineer Jeff Jones and assistants Anthony Ruotolo and Bryan Pugh. Overdub

sessions in Studio B included Mullen and her crew; Ralph MacDonald with engineer Brian Montgomery and assistant Justin Gerrish; and D'Angelo with engineer/mixer Russ Elevado, assisted by Gerrish.

SOUTHEAST

Grammy-winning artist John Legend wrote and recorded a song for an as-yet-untitled Lions Gate film at Trans Continental Studios (Orlando, FL). Staffers Mike Sroka and Doug Johnson engineered...Producer/engineer Matt Ranck recorded David Childers at The BackShop Studio (Spartanburg, SC) for a solo album to be released in early '07...At OMG Studios (Greenville, SC), Steve Williams worked on a new CD with producer Noel Golden and engineer Marcus Suarez...At Studio B Mastering (Charlotte, NC), chief engineer Dave Harris worked on a self-produced release by The Rosebuds and the James Mathis-produced album *Block Wing Yolobusho* by The Moaners.

MIDWEST

The Fort Worth Guitar Guild tracked, edited and mixed its first CD, *Mission Statement*, at Bear Cabin Recording (Fort Worth, TX). Guild boardmember Mitch Weverka produced and Bear Cabin owner Michael Sibley engineered...Rapper Koziel tracked and mixed a new EP at Linder Avenue Recording (Roselle, IL) with engineer Dom Palmisano; also in was the band *Bellevue Suite*, laying down promotional tracks, and acoustic guitarist Antonio Soriano mastering a new CD called *Chompagne Money*.



In Studio B, L-R: bassist Cane McCaslin, guitar tech Andrew Buscher, engineer Doug McKean, guitarist/singer Deryck Whibley, drummer Steve Jocs, drum tech Mike Fasano, assistant engineer Wesley Seidman

OCEAN WAY HOSTS SUM 41, LAVIGNE

Ocean Way Recording Studios hosted sessions with Canadian rock band Sum 41. Lead singer Deryck Whibley produced the tracks in the custom API-equipped Studio B while his wife, Avril Lavigne, mixed tracks for a new release in Studio D.

NORTHWEST

John Lucasey, owner of Studio 880 (Oakland, CA), has been busy mixing name artists such as Norah Jones, Sugarland and Switchfoot. Doug Logan mastered the tracks, as well as the latest Incubus release. All of these projects were for Walmart's Soundcheck series. Also at 880, producer/new age artist Will Ackerman tracked guitars in Studio A...Kevin Nettleingham of Nettleingham Audio (Vancouver, WA) reports mastering releases for Portland's Bad Backs, Mark Martin and Norm Ault, Craazy Dumbaint, Tim Smith and more. He also tracked, mixed and mastered a new CD for Yoga instructor Hope Fyfield and continued editing for the New Mexico-based radio show *Gilbert and Friends*.

SOUTHERN CALIFORNIA

Army of Anyone—a supergroup of sorts featuring Dean and Robert DeLeo of Stone Temple Pilots, Filter frontman Robert Patrick and drummer Ray Luzier—completed their self-titled debut album with producer Bob Ezrin and engineer Brian Virtue at Village Recorder (L.A.). Second engineers were Ghian Wright and Jeff Robinette. Also in: Papa Roach recorded a song for iTunes in Studio B with engineer Brian Scheuble and assistant Noel Zancanella. The band then mixed the track on the Digidesign I/O N in Studio F with engineer Alan Meyerson and Wright assisting. ■

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L.A. GRAPEVINE FROM PAGE 108

ADAM reference monitors and a Martinsound MultiMAX EX surround monitor controller. All mix rooms feature Pro Tools HD Accel rigs enhanced by plug-ins from Waves, Digidesign and other top-line outfits. This place is pimped-out, to say the least.

"A lot of people think I've just absolutely gone off the deep end," Riordan says of his new home, revealing that several million dollars went into the design, build-out, engineering, equipment and furniture alone.

"But I'm looking at this as a very long-term investment. Between real estate; banking; architectural and acoustic design; overseeing construction, budgets and schedules; moving facilities; keeping all existing clients happy; and having a newborn baby at home, it has been one hell of a year. I can honestly say it definitely wasn't boring."

This stunning edifice is the realization of a dream that was beyond Riordan's wildest imagination six years ago, when he signed on to handle audio post-production for Fox's *American Idol*. As the show exploded into a cultural phenomenon of the first order, Riordan's star rose right along with those of Kelly Clarkson, Fantasia, Carrie Underwood and Taylor Hicks, whose vocals the sleep-deprived mixer painstakingly optimized during the course of five arduous but rewarding seasons.

"I have not slept a whole lot in the last 10 years," says the high-revving mixer/sound designer/entrepreneur. "This is partly due to our crazy turnaround schedules and partly due to my disease—I can't seem to sit still for very long. I'm a workaholic by nature." He'd better be, considering that during each season of *American Idol*, he typically works straight through from Saturday until Tuesday afternoon, just hours before the week's episode airs. "We are definitely in a fast-turnaround business," Riordan says. "Nowadays, it seems that budgets and schedules continually run over, yet the airdates remain the same, so our mix time ends up getting squeezed pretty hard a lot of the time."

Riordan and his staff of mix engineers presently handle series such as ABC's *The Bachelor* and *Extreme Makeover: Home Edition*, Fox's *So You Think You Can Dance?* and NBC's *Identity*, along with a full slate of music-intensive televised events, including

MTV's Movie Awards and Video Music Awards; VH1's Rock and Roll Hall of Fame induction ceremony, *Rock Honors* and *Big In '06*; and the jewel in the crown, the *Academy Awards*, which recently became a Levels client.

"It really all boils down to having the right team," Riordan says of the labor-intensive approach that put Levels Audio on the map. "I guess I developed our reputation by acting more as a producer than simply a mixer. Each show we mix gets treated

PHOTO: EDWARD COOPER



Levels Audio Post's lounge, where recent client American Idol can relax

with 100-percent care and attention from our senior mixers from beginning to end, as opposed to many facilities, which take more of an assembly-line approach. Because of the insane schedules our clients fall victim to, we position ourselves in a way that we catch and correct any mistakes that could have been made either in production or in post. So I guess we're as much 'fixers' as we are mixers."

Riordan came to his dual-platform expertise through a combination of intent and serendipity. A lifelong music lover, he began playing piano and guitar at a very young age and began teaching himself about engineering and mixing while studying composition at Boston's Berklee College of Music. After graduating, he produced and mixed various music projects in Boston until relocating to Los Angeles in '92, when he made the transition from rock and pop projects to mixing TV commercials. "Working in the commercial world really made me understand the full-service, 'one-man-band' approach," he says. After working on hundreds of national advertising campaigns, Riordan segued back into music by developing a clientele of awards-show and music-special producers. By 1998, he'd accumulated enough advertising and



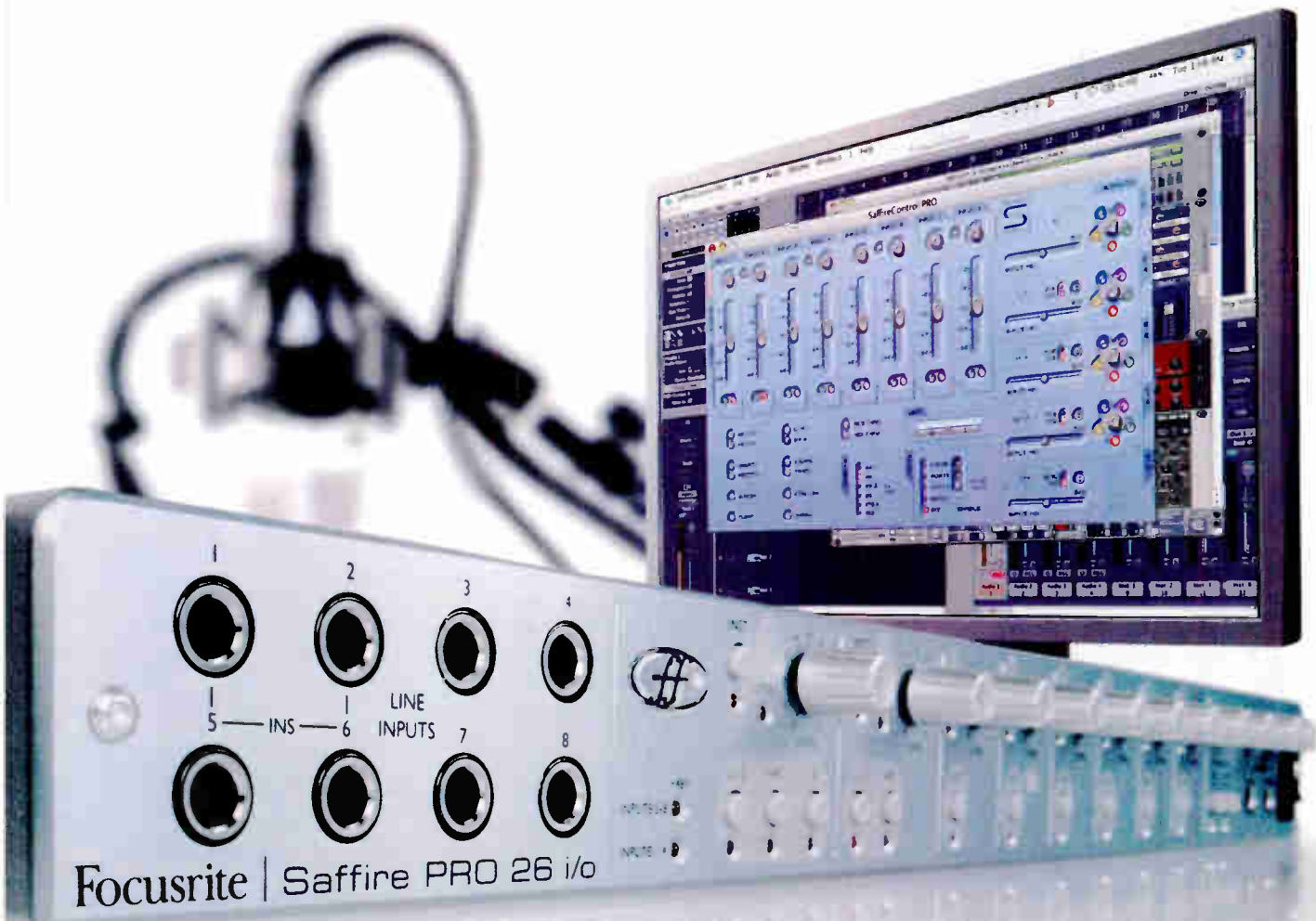
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Alan Says



We just wrapped up *Pirates of the Caribbean: Dead Man's Chest*, and there are Royer R-122V tube ribbons all over the score. I used three R-122Vs on the decca tree, and also extensively on the woodwinds.

There's something going on in the mids with Royer's tube ribbon mics that's hard to explain; there's a reach and depth and lushness that sounds magical to me.

For some remote island cues that needed a cannibal vibe, Vinnie Colaiuta, Abe Laboriel Jr., and JR Robinson played drum kits simultaneously on the Sony scoring stage. I captured each kit as a mono setup - panned left-center-right - using a single R-122V over each kit. It sounded amazing.

Alan Meyerson

(Scoring Engineer & Mixer - Hans Zimmer, James Newton Howard)

See photographs of Alan's *'Pirates'* sessions at royerlabs.com - Session Photos

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TV-special clients to warrant opening his own facility at 1606 Highland Ave., near the intersection of Hollywood Boulevard, enabling him "to do things 100 percent the way I thought they should be done."

When a long and painful Screen Actors Guild strike crippled the advertising industry soon thereafter, Levels' TV-special clientele had grown to the point where Riordan was able to fully transition out of advertising and into long-form television. He later expanded the facility, building a large dub stage, machine room, additional client lounges and editorial rooms. Then, two years ago, Riordan decided to take the big plunge to keep up with the ever-growing demand. He acquired the property at 1026 Highland Ave. in August of '05, broke ground last January and opened doors in July.

When I ask him whether the finished product, two miles and several million bucks from Levels' former location, is what he'd envisioned going in, Riordan slows down momentarily to reflect. "I'm not in this thing for a short turnaround," he says. "I'm a relatively young guy, and I plan on working for a very long time. If I've got a 20-year run at this thing, I firmly believe that I've just built the best facility possible, and that's a good feeling. It was a risky move, and I'm just hoping that it stays lucrative. I just want to do it right one time, and I hope never to have to do it again."

Send L.A. news to Bud Scoppa at bs7777@aol.com.

NASHVILLE SKYLINE FROM PAGE 109

Wagoner could find a home on the Anti label. After all, Stuart's friend Johnny Cash enjoyed his career resurgence thanks to Rick Rubin's American label.

The new Wagoner album is "open mics, with everybody playing live on the floor and taking the old-school approach," says engineer Joey Turner (Montgomery Gentry, Jim Lauderdale), meaning that they recorded almost everything live. "It is very much a 21st-century Wagonmasters [the name of Wagoner's classic band] sound. To me, they were one of those bands like

The Troubadours or The Broncos or The Strangers. They were really a great band. To me, they were the sound that catapulted Porter Wagoner into being Porter Wagoner. So we have honored that sound and freshened it up."

In other words, this isn't one of those releases featuring a legend where a bunch of guest artists drop in and fill in the blanks. The players on the tracks are none other than Stuart's own band: Kenny Vaughan (guitar), Harry Stinson (drums) and bassist Brian Glenn. Also on the sessions was multi-instrumentalist Stuart Duncan.

In Nashville's multiroom Omnisound

PHOTO: RICK CLARK



Wagoner (right) and producer/guitarist Marty Stuart

Studios, Wagoner was very enthusiastic about the work they had done so far with classic Nashville efficiency. Recording to Pro Tools in Omni's historic, tile-floored Studio A, by the week I showed up, the crew had already tracked 13 songs, most of which were penned by Wagoner. However, one song of note, "Committed to Parkview," was written by Johnny Cash.

PHOTO: RICK CLARK



One of the songs on *Wagonmaster* is Johnny Cash's "Committed to Parkview," which the Man in Black asked Stuart to present to Wagoner.



Inside Omnisound Studios, Wagoner and producer Marty Stuart's band (Kenny Vaughan, guitar; Harry Stinson, drums; and Brian Glenn, bass) rehearse a track for Wagonmaster.

Stuart recalls the song's origin: "I was a member of Johnny Cash's band in the early 1980s. While on tour in Europe, Cash and I became very intrigued with some of Porter's concept records such as 'The Rubber Room,' 'The Soul of a Convict' and 'Confessions of a Broken Man.' John said, 'I've got a song for Porter; it's about a stay in Parkview, which is an asylum at the edge of Nashville. Porter and I both have been guests there.'

"Cash gave me a cassette of the song in 1981 and asked me to get it to Porter," Stuart continues. "I never got around to it until we started collecting songs for this project. I searched my warehouse and found the envelope with 'Committed to Parkview' on it, with a note from John to Porter. Twenty-five years after I was supposed to and three years after his death, I did what I told John I would do. I delivered the song, and Porter loved it."

Wagoner was enthusiastic about the song when I asked him about it. "I think it is a real special thing to have someone like Cash write a song for you. You can tell by listening to the song and the way that it flows that Cash wrote it. He was a brilliant writer and he wrote a great song."

While I was at the session, we were treated to Wagoner's version of "Committed to Parkview," which opens with him stating, "I been in a lot of great places in my lifetime—New York City Carnegie Hall, The Grand Ole Opry, Nashville, Tennessee, West Plains, Missouri, my hometown...and committed to Parkview. I hope I never have to go back there again." At that point, Wagoner launches into a tale about an asylum populated by everything from strung-out addicts to people who

believed they were Hank Williams. It's hard country of the likes of which you don't hear much these days. Just thinking about it makes me want to grab a beer. Fortunately, I have one right beside me at the moment.

Another special song on *Wagonmaster* is "Many Hurried Southern Trips," which Porter wrote with Parton. "Dolly and I wrote it back when she first

started on my show," he says. "It's a song about a bus driver. I really liked the song and decided to do it. It's never been out here, even though there is a version out in Australia."

"You can't buy this kind of stuff anymore," Stuart says. "We are just turning the wheel a little bit. The more hardcore we play it, the better it is."

Wagoner's soulful vocals were captured with a vintage Neumann U67 mic. Most of the singing happened with the band in Omni's Studio A, but for a few tracks, the facility let Stuart and Turner bring the mic to some relaxed sessions in Wagoner's home.

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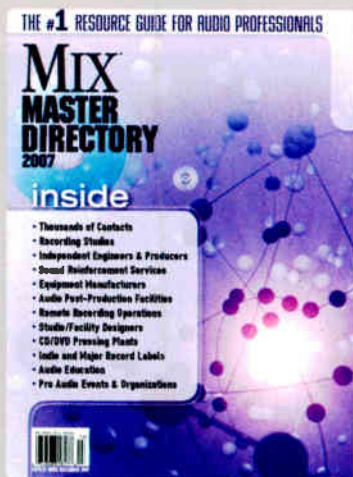
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At the time of this writing, while I enjoy some more English hospitality, Stuart and Turner are mixing Wagoner's Anti debut on Omnisound's API Legacy console. I'll have to wait till I return home to hear the finished product—bring on the Guinness! ■

Send Rick Clark your Nashville news at mrburke@mac.com.

NEW YORK METRO FROM PAGE 109

years, we started to get to know each other better, and after a long conversation, he threw out the idea that maybe we should merge our businesses. Part of what made the synergy so nice is that the majority of the business we were doing was record album work, but a lot of what Right Track was doing was film and Broadway."

Right Track's unforeseen construction expenditures notwithstanding, Amlen cites a number of factors that had put the two facilities in a world of hurt: "Both facilities rely on the record industry for the majority of our income, and they've made countless mistakes since the Internet age took hold," Amlen states. "Downloading took off, and they were so slow to react in a way that made any difference—that was one problem.

"Next, in reacting to the extensive illegal downloading, the record industry pared down its budgets, cut the rosters it had and stopped new artist development, which were all short-sighted ways of working. Rather than finding creative ways to package their artists so they weren't relying only on physical medium sales, they pulled back so that's *all* they were relying on. They killed themselves, and as a consequence, adversely affected large studios' ability to sustain business."

Amlen also cites the increasing popularity of all-in budgets, which give producers a lump sum to complete a record and can therefore potentially give them the incentive to retain more in their pocket at project's end—cutting corners along the way. He also readily acknowledges that the growing number of DAW-based home/personal studios have had an impact, as they alter the perceived need for larger, more completely equipped and staffed facilities. Last, but not least, Sound on Sound and Right Track had the built-in cost of New York City to offset. "What's unique to New York City are the rents and the cost of doing business," he says. "They're prohibitively expensive as compared to L.A., Nashville, Miami or Nebraska."

With the agreement for the merger reached and scheduled to commence on November 1, 2005, Amlen, Andrews and their management teams next had to implement

a plan that would make the most of both facilities' personnel, real estate and gear. The retention of Right Track's Studio A509 and adjacent space was an obvious decision, and there was a more stable tenant/landlord relationship at Right Track's 48th Street location, making it logical that Sound on Sound would be the studio surrendering its beloved rooms and moving to new quarters.

Before the move, Amlen held a high-level focus group with his top six clients to find out how he could best retain their business post-merger. "We talked to them in confidence before the merger, asked them what concerns they would have and what we would need to do to make the transition pretty seamless," he recalls. "It made sense: You have to talk to the people that bring in the most revenue, and we asked, 'What would you like/not like/want to change?' The presence of Augspurger monitors going forward, for example, was a huge thing for all six of them."

What resulted was a unique opportunity to bring together the *crème de la crème* from two of the city's top facilities. Sound on Sound's two SSL 9072 J consoles from its Studios A and B were transplanted to Right Track's Studios A and C, both supplemented by custom Augspurger mains. Twenty-four Neve 1081 modules add to the audio interface options in Studio A, along with a wide array of choice gear and microphones now combined at both facilities for a concentrated, extremely high-quality collection. "Excepting Sony, which is a corporate entity, we are the largest independent entity on the whole East Coast," Amlen says. "We're capitalizing on that, using the best of what that entails."

While gear doesn't care much about what moves into the adjacent rack unit, mixing up the humans from two studios is more complex, starting at the top. General manager Chris Bubacz studied these issues while getting his M.B.A. degree, "the clash of cultures when two companies come together," notes Amlen. "A year later, the results have been that the Right Track client base has stabilized and the Sound on Sound client base has made the transition. Sound on Sound stood for the hip hop and R&B crowd: That's not going away, and it's here with rock, pop and everything else. Right Track always stood for the bigger artists—David Bowie, Mariah Carey; artists with these legacies. That was in part the inspiration for the joined facilities' new name, and it's a brand that we expect will definitely evolve as we move forward." ■

Write to New York editor David Weiss at david@dwords.com.



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—FROM PAGE 24, GET YOUR GAME ON

hear the same six bullets all the time.”

But that’s pretty much where the likenesses end. Because a game is constantly changing, the sound environment has to be completely fluid, which means the audio producer has to work closely with the artists and the programmers early in the development process to anticipate what the game’s audio requirements will be. “We spent about a month doing an audio design document before we started building,” Verrette says.

“A game might have lots of different surfaces the characters walk on, like a stone road, a grass field or a bridge,” he continues. “In real life, the footsteps on all those surfaces would sound different. In a film, you just put the right sounds in the right place, but in a game, you don’t know where the player is going to walk, so you have to figure that out in real time. One solution is that the sound person looks at all the levels and uses a tool to designate which areas or zones in the game belong to which footstep effects.

“But a step beyond that, which we’ve incorporated into our development engine, is to build the sounds directly into the ground textures: As the game designer puts down a grass field, the sound is already built into it, so the sound designer doesn’t need to go back and revisit all the levels. Every asset in the game already has sounds attached to it. When the artist creates a sword, the game knows which sounds are associated with that sword: how it sounds when it’s picked up, when it’s swung and whether it hits metal or fur. The idea is to design a system that takes care of itself, more or less.”

Verrette did a demonstration for one of my classes this year in which he showed how the game engine created the sound mix on the fly. Each sound—dialog, music, ambient effects, Foley, etc.—has its own layer and therefore its own audio channel (or two). Background sounds are looped and randomized in terms of timing, pitch and stereo placement. Each element has a timer that determines how frequently it plays while the scene lasts so that the listener hears a non-repeating soundscape.

“Sometimes sounds work a lot differently than you think they will,” Verrette notes. “It’s one of the biggest challenges I found moving from post-production because the mix isn’t static. You can be auditioning your sounds on desktop speakers, but when you get them into a game, they sound completely different. If a sound needs to be totally bass-y, when you put it with everything else it might come up against, it loses its ‘oomph’ or it disappears completely. So

sometimes you build sounds that don’t sound great by themselves because you have to take into account everything they might be combined with.

“You also want to make sounds as short as possible so they take up less memory and load fast, and when I first started out, I had a tendency to chop things off short, but I found you lose a lot. I was amazed to find how much the last quarter of the sound helps us to identify it. It’s not just the initial crunch of the footstep that tells us what kind of surface it’s on, but also how it peels off that surface. You can’t

In a racing game, the engine sound is looped and it changes pitch as the rpms go up. But how do you get it to sound realistic when you shift gears? Same with a machine gun sound—you don’t want to hear the same six bullets all the time.

—Mike Verrette

sacrifice your reverb tails too much. You do want to make the sounds short, but you still have to sell them as what they’re supposed to be.”

Stitching the music together coherently as scenes change is another major concern, and again, the solution can be counterintuitive. “If you want to make the transitions musical,” Verrette explains, “your tendency is to make the loops even numbers of bars and transition on downbeats. But that means that if you want to move quickly, the loops have to be short. And even then, waiting for the downbeat doesn’t always work well because it makes the game feel unresponsive. Instead, we found the best thing to do is to literally crossfade to a different piece of music. When you listen to the transition all by itself as a piece of music, it doesn’t sound as good, but when you’re playing the game, it keys into what the game is doing and makes it feel more responsive. That’s more important than the musicality of the transition.”

Another consideration that post-production mixers don’t have to deal with nearly as much is the delivery platform. Iron Lore’s products so far have just been for Windows PCs, but the company is looking to expand into console development for future products. But even within the PC world, there are many variations that the designers have to worry about. “There’s a lack of standards in hardware,” says Verrette. “You don’t know what the end-user’s going to have. Is he go-

ing to be using 2.1, 5.1, 7.1 or headphones? And the sound cards vary: Sound Blaster has a monopoly except for the laptop market—they have onboard chips—but even then, the cards all have different throughput, DSP options and numbers of channels. You have to prioritize the sound so that when the engine runs out of channels, it knows what to drop; the dialog can’t drop out, but maybe the Foley can.

“You have to specify a minimum spec and a recommended spec. This requires a DVD player that runs at ‘x’ speed, this much disk space, this much RAM and this proces-

sor speed. And besides the sound cards, the graphics cards make a difference. Plus, you have to worry about what the user is running in the background, like chat clients or antivirus software. You can recommend they turn everything else off, but they often don’t. And then when they have problems, they go online and bitch about how you don’t know how to make a game. The community is very unforgiving—they all know everything,” he says with a laugh.

And, of course, the operating system itself is a big variable. “For the last project, Windows 98 was out of the picture,” Verrette says. “We only supported Windows 2000 and XP. It is always difficult to choose which operating systems you are going to support because you want to make sure you are not alienating large groups of the market that may not be running on the most up-to-date systems. In the future, we will have to look toward supporting Vista, as well.”

Next month, I’ll talk more about the joys and perils of developing for console platforms, and also a bit about the culture of game development and how it affects the people who are in it. ■

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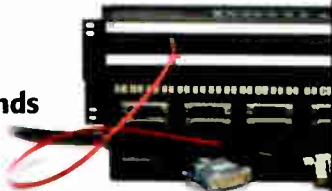
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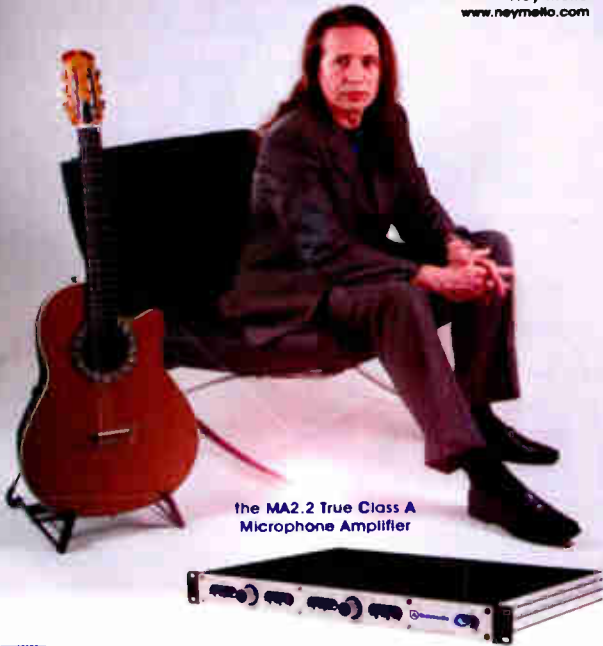
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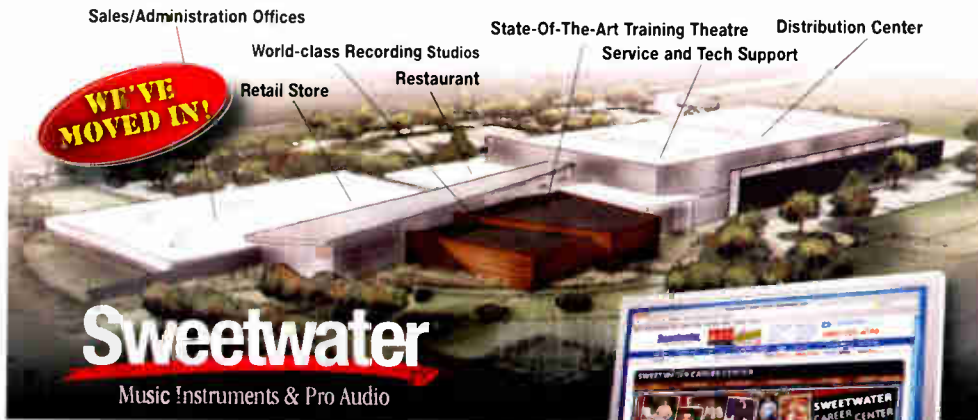
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Liquid Technology

The Focusrite Liquid Mix is another Focusrite first and a true one-of-a-kind. Based on the same technology that brought the audio world the acclaimed Liquid Channel, Focusrite now brings Liquid Technology directly into your DP5 studio environment at a much more accessible price. Focusrite Liquid Mix offers emulations of 40 compressors and 20 EQs with a FireWire Hardware controller. Thanks to its built-in DSP, you can have up to 32 channels of modeled vintage or modern compression and EQ with one Focusrite Liquid Mix, with no impact on your native DP5 processing resources. Plus you can control Liquid Mix channels from directly within Digital Performer using Liquid Mix plug-in windows, which keeps your Focusrite processing seamlessly integrated with — and saved with — your DP projects.

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Waves native processing

Waves has long been synonymous with quality plug-ins, and the **Waves Platinum Bundle** contains a huge range of top-quality Waves processing for your DP5 studio. The Platinum Bundle now includes Waves **Tune LT**, **L3 Ultramaximizer**, and **IR-L Convolution Reverb** as well as all the plug-ins found in the **Waves Gold and Masters bundles**. Platinum brings extraordinary signal processing power to DP5, for tracking, mixing, mastering, and sound design. From dynamics processing, equalization, and reverb to pitch correction, spatial imaging, and beyond, Waves Platinum Bundle is a must-have for every MDTU studio.



Ultimate expandable synth

Ultimate Soundbank Plugsound Pro puts a complete "rompler" right inside Digital Performer 5, giving you all the essential sounds you need for your mobile music. Sharing the same UVI engine as the MDTU Ethno Instrument, Plugsound Pro gives you 8 GB of instruments and loops plus powerful effects and performance features, including the innovative drag and drop of audio or MIDI between the plug-in and Digital Performer. An ever-expanding range of add-on sound libraries include retro organs, classic synths, cutting-edge sound FX and textures, modern drum loops, and a just-released collection of must-have retro keyboards.



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Komplete control

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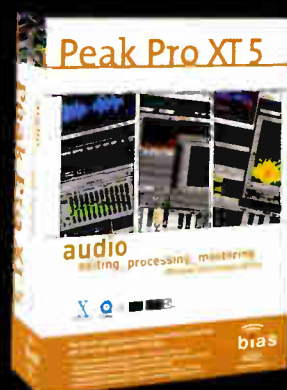
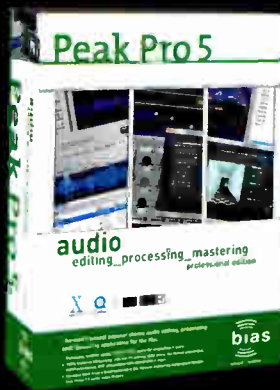
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Station features a complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied for flawless visual metering of levels both in dBu and dBfs mode. Communicate with the artist via talkback. Send a headphone mix to the artist while listening to the main mix in the control room and more. The Central Station brings all of your inputs and outputs together to work in harmony to enhance the creative music production process.





Portable hands-on control

AlphaTrack by Frontier Design Group combines intuitive tactile controls in a compact and highly portable package. with native support for Digital Performer. Ride a 100mm, touch-sensitive, motorized fader with true 10-bit resolution for smooth and precise level control. Three touch-sensitive encoders let you adjust your DP track and plug-in parameters while the 32-character backlit display shows detailed feedback in response to your touch. Map your favorite shortcuts from the Commands menu to AlphaTrack's user-programmable buttons. Jog and shuttle with the touch of your fingers using the integrated Scroll Strip. Slide one finger across the Scroll Strip surface and your project's timeline scrolls in response. Drop a second finger onto the strip, and now your fingers control DP's shuttle speed. Zoom through your project with two fingers, then just lift one finger and slide to quickly set the precise position you want. AlphaTrack is powered entirely through its USB connection so it makes the perfect companion to your portable MOTU recording rig.

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Ableton Live 6

Making Tracks and Loops Jump Through New Hoops

Over the course of its short history, Ableton Live has moved quickly from a novel live performance/looping tool to a full-featured audio, MIDI and now video-capable workstation. Its capabilities rival the feature sets of such venerable studio stalwarts as Apple Logic, MOTU Digital Performer and Steinberg Cubase. Live has evolved so quickly, with new versions coming out like clockwork, that many people haven't had a chance to catch up with the program's latest additions. Here are some of my favorite tricks from the past few versions that will help you take your remixes, film scores and live playback tracks in new directions.

MULTITRACK WARPING

Live's ability to radically alter the tempo of audio tracks via Warp markers is one of the most powerful aspects of the program. With Version 6, you can apply Warp markers across multiple tracks at the same time. This is a great way to tidy up multitrack drum sessions. To do this, all of the tracks must be the same length (as is usually the case with multitrack drums). In the Arrangement view, highlight all of the tracks to bring up the multitrack Warping function. From here, any Warp marker changes that you make will affect all of the tracks in the same way. It's best to use the room mic or the overheads as your guide track, as these sources will give you a better overall picture of the entire drum kit, making your edits more accurate across the other tracks.

CROSSFADER: NOT JUST FOR DJS

Every track in a Live session can be assigned to one of the two sides of the crossfader (A and B, respectively). An incredibly easy technique you can use for sound design, remixing or live performance involves bouncing out your current session—effects and all—and assigning the results to the other side of the crossfader. Once you've rendered the file, experiment with different effect chains. This is a great chance to try out old stomp box effects or whatever else you have around. Once you have your desired results, add the new clip back into your Live session and assign it to the opposite side of the crossfader. Assign the

crossfader to a MIDI hardware controller. Now with the session playing, you can crossfade back and forth between your original session and the alternate version you just created—and all with a minimal hit to your CPU.

MASTER WARP

Similar to the way other DAWs allow you to create master tempo tracks, Live 6 now lets you designate one track as the Master Warp track, forcing all of the other clips in the session to follow the tempo of the master. This can be useful in a variety of applications—from remixing to sound-for-picture. To access this function, click the Master button in the Sample box (located within the Clip View pane) of your desired Master Warp track. If you designate more than one clip as the master, Live will default to the clip nearest to the bottom of the Arrangement window. Beyond matching sound to picture, this feature is great for synching loops or other elements to a lazy acoustic guitar track, or anything with decent transients that wasn't recorded to a click.

MACRO CONTROL

Instrument and effect racks are major additions to Live 6. On the surface, many might mistake these as being nothing more than layered instrument or multi-effect processing chains, but that is not the whole story. Each rack has eight macro controls that can each be mapped to multiple controls within the rack and controlled with standard MIDI hardware. For example, one macro control can be used to control the filter cut-off, high EQ and delay wet/dry for an instrument rack. Furthermore, each parameter's control values can be constrained to certain ranges and even inverted. And while this may seem like too much to keep straight, try using the program's handy Mapping Browser, which



Live 6 lets users apply Warp markers across multitrack recordings at the same time. This feature is ideal for editing drums or imposing a single groove over multiple tracks of the same length.

displays all current mapping assignments and is refreshed every time you make a change to the session.

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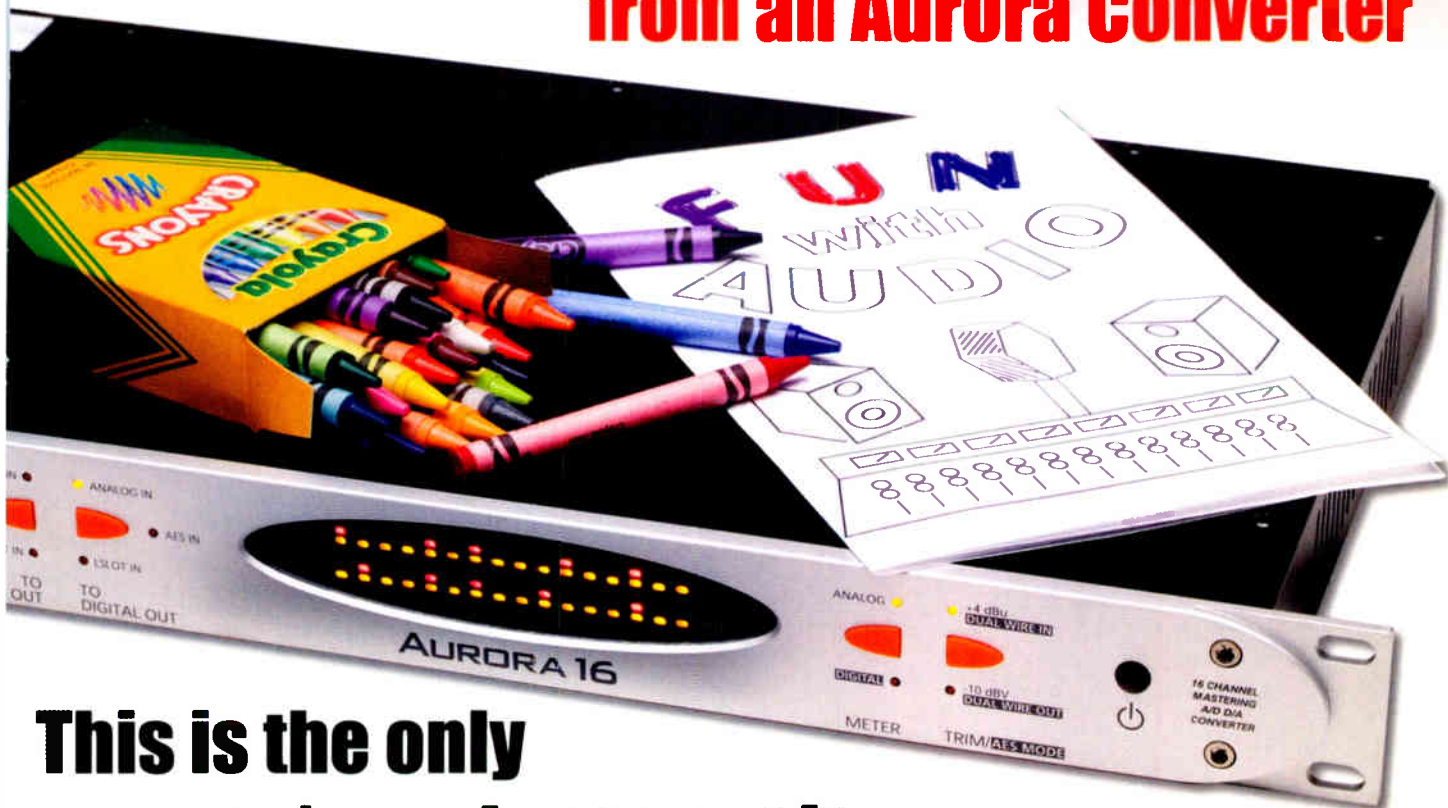
Creating glitchy stutters and fills for your drum tracks used to be a tedious cut/paste affair, but Live makes it a breeze. Beat Repeat (added with V. 5) is an audio processor that does all of the heavy lifting for you. This processor can sample and repeat a specified amount of audio at specific bar and beat locations, all while staying perfectly in sync with the session tempo. And like all controls in Live, everything in Beat Repeat can be assigned to MIDI controllers. A task that used to require an hour of careful editing can now be duplicated with a couple of knob twists.

DEEP FREEZE

Freezing tracks is one of the best ways to save CPU resources, especially when moving a Live session from your main rig to an older or underpowered laptop. Now, the new enhanced Deep Freeze feature in V. 6 lets you edit (cut/copy/paste, etc.) regions, as well as apply automation changes, edit the way clips launch, move frozen MIDI/instrument tracks on to audio tracks and more. And once saved with the Live session, the frozen tracks open and behave exactly the same on your laptop. ■

Robert Hanson is a former Mix and Remix editor who is very happy to once again call San Francisco home.

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Compact bus-powered 10x14 FireWire audio interface



Sturdy. Compact. Portable.

The UltraLite is the only

half-rack audio interface that offers stand-alone operation with programmable mixing from its unique backlit front panel LCD. And it includes two mic inputs with a 60dB gain range, plus all the analog, digital and MIDI I/O that you need.

- 10 inputs / 14 outputs • Compact: 8.5 x 7 inches • Bus-powered • 96kHz recording • On-board CueMix DSP mixing • LCD programming • 2 mic inputs
- Individual 48V phantom power • 60dB pad/trim gain range • Stand-alone mixing • 6 TRS analog inputs • 10 TRS analog outputs • Separate main outs
- Main volume knob • Headphone volume knob • S/PDIF digital I/O @ 96kHz • Metering for all inputs & outputs • Sample-accurate MIDI • On-board SMPTE sync
- Expandable • 2 FireWire ports for daisy-chaining • Mix & match with other interfaces • Includes AudioDesk® software • Cross-the-board compatibility