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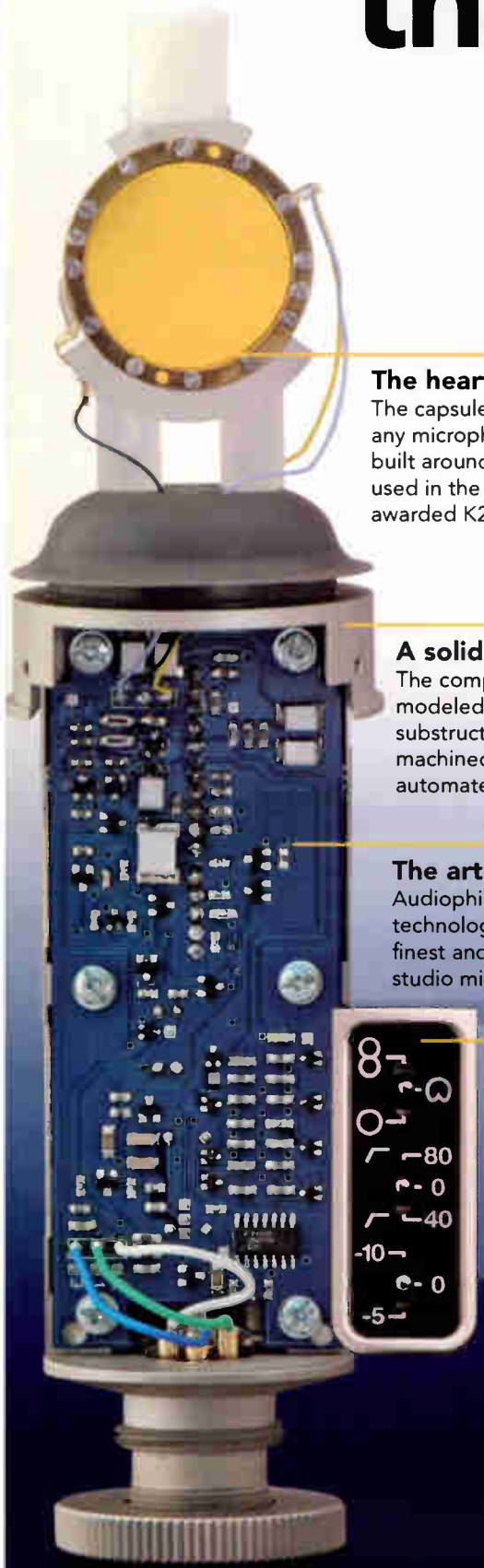

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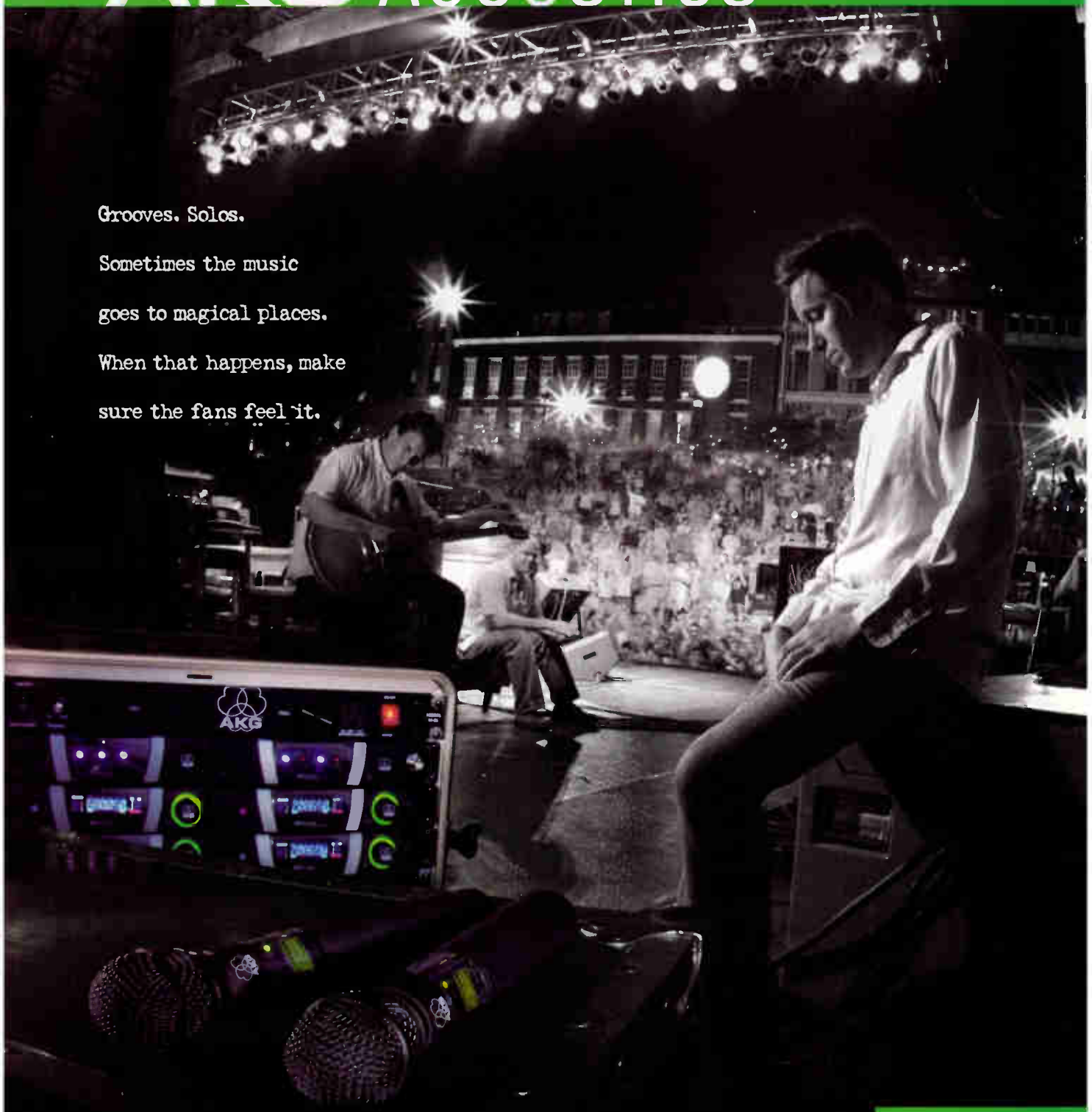

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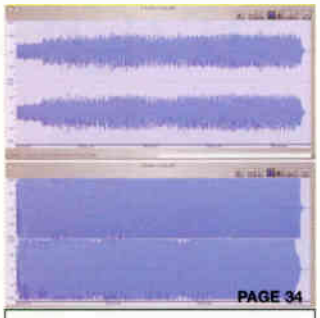
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features

On the Cover: Doug Sax's new The Mastering Lab (Ojai, Calif.) is surround-ready, complete with a customized ATC 5.1-channel monitoring system and a custom-built, transformerless tube console. **Photo:** Edward Colver.

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You Better Shop Around

This week, I listened to some of the worst tracks I've heard in years. It was a standard (guitars/bass/drums/vox) rock project that any pro could have mixed in his/her sleep. I was aghast at this lifeless, mushy mix—and so was my buddy Walter, who, as a friend of the band, brought the FireWire drive containing the tracks by my studio. Certainly, a new mix could fix everything—or at least ease some of the pain.

The story began months ago, with the band hearing some decent mixes from a guy's bedroom studio; he offered to do the album for about $2,000, paid part in cash and part with the band buying a plug-in suite he needed. This was the first of many clues indicating that something wasn't right, but as recording novices, the band didn't pick up on these until it was too late. Another clue? The drum miking employed novel methods such as placing the "overhead" mics low and pointing toward the edge of the cymbals. There was no ping, but plenty of a strange phasing effect as the cymbal wash moved above and below the capsules' axis. The peak levels on the DAW tracks varied from -40 dB to beyond-clipped square waves. The miked guitars were mush, the bass indistinct and the singer had intonation problems that were never recut. Things can sometimes be fixed in the mix, but working on these tracks was nearly impossible.

Unfortunately, the band felt that the problem stemmed from them not having enough money and got what they paid for. Not so! This well-rehearsed band with a tight drummer could have gone into any number of smaller studios, spent a couple days tracking, a couple days mixing and have a great result. Well after the fact, the band found out the demo tracks the engineer played for them were from a band that mixed themselves and went direct on everything except for the drums, which were cut at a demo service where a hot studio drummer plays/records tracks for your songs.

I should emphasize that this is not an indictment of project studios, but of incompetent people who—having bought some gear—think they know how to use it. The lesson here is to shop around. Business is slow in the studio industry, creating a buyer's market—sometimes a $150/hour room can go for $80 or a $100/hour room for $40, depending on demand. If you're on a budget, most studio owners are glad to work with you. If you're flexible about time, then ask if there's a slow time—maybe a late-night session when you can get a better rate. A producer I know gets insanely low lockout rates to track at high-end studios by booking the week between Christmas and New Year's—traditionally slow times in some industries.

A little creativity and a few phone calls can really pay off. But once those hot tracks are mixed, make sure your budget includes some dough for real mastering. Sure there are plenty of mastering gizmos and plug-ins out there, but there's also a reason why top artists turn to the golden ears of a pro mastering engineer to give their releases that major-label sound. And after all the time, effort and money you've spent on your project, doesn't your work deserve it?

George Petersen
Editorial Director

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Letters to Mix

MARDIN MEMORIES

Great interview with legendary genius Arif Mardin ["Mix Interview," October 2005]! He and his brother helped shape much of the music I listened to while growing up in New York City. His special mention of Tom Dowd showed the respect for another genius I once had the pleasure of spending a brilliant afternoon with in Miami, listening to him tell of days and nights recording with the Mardin brothers.

Al Irizarry

GOLDEN EARS INTO THE GOLDEN YEARS

As an audio engineer involved in the research and development of technology for deaf and hard-of-hearing people, I'm always delighted to see the pro sound and recording industry address the important topic of hearing loss. In the July [2005] issue of ["Insider Audio"], the author recounts a discussion with his audiologist about the value of equalizing sound to compensate for hearing loss. Unfortunately, the conclusions are both confusing and misleading. Perhaps the problem is that audiologists and audio engineers do not speak the same language.

The audiologist [Dr. Chris Halpin] is quoted as stating, "In sensory hearing loss from age or exposure to noise, the apparent loudness does *not* shift with thresholds. You just lose the quiet tones." Naturally, the audiologist is thinking about pure tone audiometric testing. Audio engineers think about the full spectrum of musical sound. If the mixing engineer/producer has a hearing loss of 60 dB at 8 kHz in both ears, then his/her mix will probably reflect this. If left alone to do the mix, relying on listening to a monitor system that is more or less "flat," it could very well turn out to be an overly "bright" mix. So, is there value in correcting a sound system to fit the listener/mixers' hearing capabilities? I think so.

I invite all readers past the age of 40 to equalize a good pair of headphones for a perceived flat response from 20 to 15k Hz. I use a ⅓-octave stereo EQ and an old mix reference test CD with ⅓-octave test tones. Doing one ear at time, start at 1 kHz, setting a comfortable level. Go through all the tones and adjust the corresponding EQ adjustment for approximate equal loudness relative to 1 kHz. Don't be surprised if you run out of adjusting room at the high frequencies!

Play a CD of which you are very familiar. Switching the EQ in and out is a very revealing experience! The subtle high-end sounds of triangles, cymbal brushes, tambourines, xylophones and other acoustic instruments emerge from the mix in proper balance.

There is so much that we do not know about sound and perception. There are "deaf" musicians such as Evelyn Glennie who seem to function quite well by "feeling" the music. There are also theories that suggest the neural pathways that carry high-frequency information in the ear-brain connection atrophy when they are no longer being used by those of us who have high-frequency hearing losses. Check out Dr. Alfred Tomatis (www.tomatis.com) and his research that shows the ear to be responsible for so much more than just hearing. For myself, I notice feeling energized after an "equalized listening session," sort of like stepping out of a steamy shower into a cool, dry room.

As the population of audio pros ages and continues to work in this field, the subject of hearing loss and what can be done to [prevent it when possible and assist those who are affected by it] will become increasingly critical. I hope that *Mix* will continue to cover this subject, along with helpful bits for the younger generation on how they can protect what they have—while they still have it!

Norman Lederman
Oval Window Audio
Nederland, Colo.

TIP FROM AN AVALON INSIDER

I'd like to point out one inaccuracy in the "All Access" report on The Roots' San Francisco show in the August 2005 issue.

The Grand Ballroom, currently operated by Another Planet Entertainment, was not the historic Avalon Ballroom. The Grand is in the Regency Center, which was originally built as a Masonic Lodge facility. The room now called The Grand was from the late '60s, a movie theater called The Regency. Its entrance was on Van Ness Avenue. The Avalon, whose entrance was around the corner on Sutter Street, was, after its days as the Family Dog's dance palace, also converted to cinema use and dubbed the Regency II during its 30 years or so as a movie theater. This is probably the source of the confusion.

The room now called The Grand was still in use as a meeting place by the Masonic Order in the '60s and, except for one Mothers of Invention/Lenny Bruce show produced by Bill Graham, was not used as a rock venue during the Fillmore/Avalon era.

Lee Brenkman
Avalon Ballroom sound guy, 1968-'69

CLASSIC TOTO

Thanks for the article on Toto's "Africa" in the August 2005 "Classic Tracks." It's awesome to read such an informative piece on such a great band. It's too bad that they don't get the press or the recognition they deserve, especially in this country. Having been a fan since 1978 (at the ripe old age of 10), I just recently had a chance to see the band in concert for the first time a couple of months ago. They didn't disappoint after all these years of waiting to see them.

One minor glitch in your article is that the picture you showed of them wasn't the lineup of the band at the time of that record. Joseph Williams and Mike Porcaro weren't in the band then. I encourage anybody out there to check out the SACD 5.1 mix of *Toto IV*!

Rob Mount

SANS ESATA

Jason Scott Alexander's "The Audio Pipeline" [October 2005] was a valuable survey of digital audio interconnects, but he omitted External Serial ATA, or eSATA, which essentially adds more robust cables and connectors to the SATA spec and allows cable lengths of up to 2 meters.

eSATA would enable things like my hypothetical "invisible" desktop computer: Picture a Mac Mini, but with the hard drive located in the power supply brick on the floor. The remaining components could be packed into an enclosure slim enough to be attached to the back of a flat-screen monitor via Velcro™, completely out of sight.

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PHOTO: MASIKA SWAIN

The Pass owners, from left: Jamie Way, Dave Way, Loree McBride, Brent Spiner, Diana Richardson and Tony Richardson. Kneeling: friend Michael Dorn

Producer/mixer Dave Way and Jamie Way (former Larrabee East studio manager), along with investors Diana Richardson, Tony Richardson and Brent Spiner, have purchased Larrabee East and renamed it The Pass (L.A.). (See "L.A. Grapevine," May 2005 for more information.) Although the studio "officially" opened in April, recent renovations to the mix room and lounges pushed the grand opening party to September 16. Since taking over the studio, The Pass has hosted such artists as the Rolling Stones, India. Arie, Rosanne Cash, Switchfoot, Wolfmother and Van Hunt, as well as producer/engineers Bill Bottrell, Dave Sardy, Matt Wallace, Dave Bianco, Mark Trombino, Nick Launay, Pat McCarthy and Rob Schnapf. Visit the studio online at www.thepassstudios.com.

BE COUNTED!

PAMA

PAMA TO RELEASE INDUSTRY SALES STATS

The Professional Audio Manufacturers Alliance (www.pamalliance.org) will launch a "State of the Industry Worldwide Pro Audio Sales Statistical Survey." Manufacturers (PAMA members and non-members) interested in participating should contact Paul Gallo at pgallo@pamalliance.org or at 212/696-1799.

SHURE'S NEW PLC A LISTENING PLAYHOUSE

Shure has added to its 6,500-square-foot, two-story Technology Annex with the new Performance Listening Center (PLC), designed by Russ Berger Design Group. The PLC will aid in Shure's research, design, product development and competitive analysis efforts.

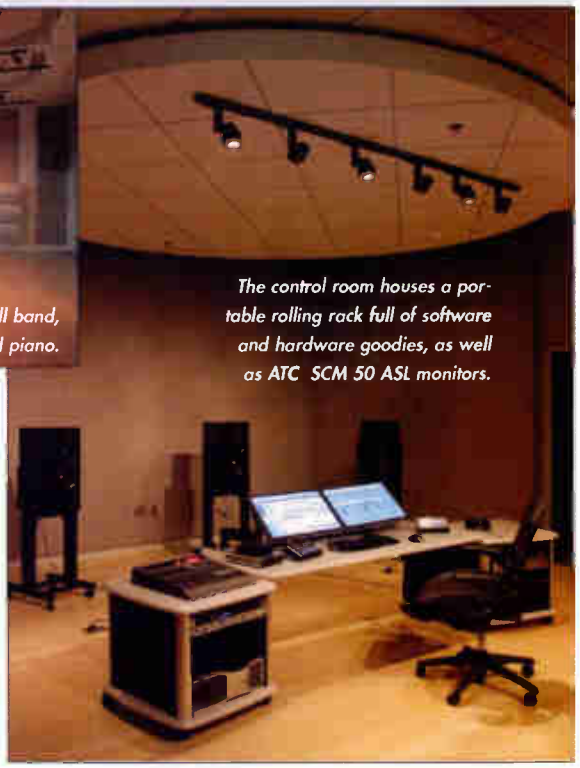
Large enough to accommodate a small band, a full drum kit and a baby grand piano, the evaluation studio's main room is bordered by an iso booth and a control room housing recording and playback gear, as well as the engineer's and producer's desks.

Rather than employing a traditional mixing surface, the control room incorporates Sony Vegas 6, Sound Forge 8, Steinberg Nuendo 3.1 and Wavelab 5 software; recording hardware includes Prism Sound ADA-8Xr 8-channel D/A converters with FireWire and two Grace Designs m802 8-channel mic pre's with remote control—all residing in a portable rolling rack. Monitoring is via ATC SCM 50 ASL active enclosures and a Grace Designs m906 5.1 controller.

The critical listening room boasts tiered seating for 14 and a bamboo floor, as well as three ATC SCM 100 ASL active monitors, a Carillon Audio Systems computer and 192kHz multichannel AES/EBU interface capabilities from Lynx Studio Technology.

Chicago-based Krueck & Sexton Architects guided the PLC's implementation. From Shure, Ken Platz, acoustical engineering manager, and Jason Milo, mechanical CAD system administrator, oversaw the design and installation of all technical infrastructure, with additional guidance provided by the company's Jim Furst, Mark Gilbert, Jon Halverson, Yuri Shulman and Glen Brown.

The evaluation studio can hold a small band, a full drum kit and a baby grand piano.



The control room houses a portable rolling rack full of software and hardware goodies, as well as ATC SCM 50 ASL monitors.

COMPILED BY SARAH BENZULY

MEYER SOUND ACQUIRES LCS

From left: Meyer Sound's John and Helen Meyer and LCS' John McMahon

On November 1, Meyer Sound announced that it has acquired LCS, which manufactures VRAS, CueConsole, CueStation, Matrix3, SpaceMap and WildTracks. The two companies began working together on the development of Meyer Sound's Galileo loudspeaker management system. "A strong relationship was created with LCS through the development of Galileo," commented John Meyer, president/CEO of Meyer Sound, "and I look forward to leveraging their technologies to give users the same high level of quality and functionality in digital products as we have in everything Meyer Sound makes."

LCS' CEO, John McMahon, plans to combine LCS' technologies with Meyer Sound's marketing and manufacturing capabilities: "Meyer Sound's excellent reputation and profile in audio will enable us to provide innovative products to broader markets and continue pushing the state of the art forward in new ways."

LCS will remain in its Sierra Madre, Calif., and Vernon, B.C., offices with all 18 employees remaining onboard; McMahon and LCS senior VP Steve Ellison will continue to promote LCS' line of products.

TEC SCHOLARSHIP WINNER ANNOUNCED

The Mix Foundation for Excellence in Audio has announced that the 2005 TEC Awards Scholarship Grant has been awarded to Jeanne Montalvo. The Georgia State University senior is studying music recording technology. Montalvo's future plans include going to school in Barcelona and receiving a certification/diploma in live sound and then working in Europe.

"I am driven by a passion that becomes more and more obvious to me every day," Montalvo said. "It is never work when one is living his or her dream."

For more information about the TEC Awards Scholarship Grant, please go to www.mixfoundation.org.

ON THE MOVE

Who: Brad Vosburg, owner/operator, Fox Mountain Productions (Nashville)

Main Responsibilities: recording, editing and mixing. Any open days I have are used to maintain the equipment and play catch-up on paperwork.

Previous Lives:

- 2002-2005, freelance audio mixer
- 2001-2002, Digidesign L.A. product specialist

How I plan to include my recently acquired Pro Tools Expert Operator certificate is...as another useful selling point when talking to potential clients.

I knew I was in the right industry when... I worked on my first album project when I was 14. Remember vinyl?

The last great movie I saw was...don't know about great, but the last movie I rented was *Super Size Me*. I'm preparing all my meals at home from now on!

Currently in my CD changer: an indie-label debut album I just finished mixing for the band Dime Store Thieves, Mos Def's *The New Danger*, a Paul McCartney compilation that recreates his set list at Madison Square Garden, Foo Fighters' *In Your Honor* and The Grays' *Ro Sham Bo*.

When I'm not in the office, you can find me...working on my cooking skills in the kitchen.

JONESING FOR A PROJECT STUDIO UPGRADE

Composer/sound designer Jeffrey Allan Jones brought in MW Audio to supply production equipment and acoustic treatment products (Auralex ELiTE B24 Fiberglas Pro Panels) to his new Hollywood project room, Alan Audio Works (Lakewood, Calif.; www.alanaudioworks.com). The studio comprises a 350-square-foot mix room with 5.1 monitoring linked to a voice-over booth and two tracking rooms. Also brought in were high-end mics (Neumann, AKG, Sennheiser), pre's (Avalon Designs) and monitor systems (Genelec 1030A, 7060), which augment his existing Pro Tools|HD3 DAW and accessories.

One of the first works completed in the facility was a complete sound design and mix for *Disaster*, director Roy Wood's new claymation feature film produced by Dream Entertainment. "The live tracking rooms and vocal booths sound great," said Jones.

Jeffrey Allan Jones

IF I WERE STRANDED ON A PRIVATE ISLAND....

Michael McDonald's Private Island Trax (www.privateislandtrax.com), a multi-room facility in Hollywood that is celebrating its 20th anniversary, has been expanded with a 1,200-square-foot 5.1 film mixing theater. The new room is based around Pro Tools, Control|24 and Bag End TA5000 speaker systems for the high and midrange L/C/R channels and two Bag End S18E 18-inch sub systems.

In recent months, McDonald has mixed six feature-length films using the Bag Ends; the latest completed project was remixing the music scores of 130 classic films for 20th Century Fox. "My clients are all very pleased," McDonald said. "The speakers project well and translate perfecty in theatrical mix settings."

In other studio news, McDonald brought in a brood of kittens who were born at his home and raised at the studio by the interns, managers and engineers. All of the "fuzzy little music lovers" were adopted by clients, except two, whom McDonald named "woofer" and "tweeter." Awww...

JET-SETTING PRO AUDIO TIPS

Standing, from left: Rob Arthur, John Peña, Danny Wilensky, Steve Dubin, David Rideau, Alan Pasqua, Billy Ward, David Garfield, Paul Nowinsky, Chad Wackerman, Billy Cross (RMC), Kim Richey, Paul Brown, Paul Jacobs, Brandon Fields and Steve Hodge. Seated, from left: Jack Petruzzelli, Glen Burtnik, Ann Klein, Lenny Castro, Ellis Wagner Johansen (RMC), Flemming Ostermann (RMC) and Kevin Becka

A group of 20 U.S. engineers, producers and musicians were recently invited to teach a group of 130 students at the Danish Rhythmic Music Conservatory (RMC) in Copenhagen, Denmark. The weeklong event gave college-age Danish musicians and engineers a unique look into the performance, production and recording of American music. It culminated in a standing room–only concert that was part of Copenhagen's Culture Night, a yearly event where museums, concert halls, schools and other venues throughout the city are open until midnight. All evening, the public is free to drop in on any venue to sample the best art and culture the city has to offer.

The RMC event was broken into three segments. The band segment had one of the American musicians guiding one of 15 Danish bands through arrangements of various songs. The engineering segment involved the recording and production of two songs—from start to finish—by engineers David Rideau and Steve Hodge, and producers Steven Dubin and Paul Brown. Engineer and *Mix* technical editor Kevin Becka, who taught a surround recording workshop, headed the last segment. TC Electronic, Tube-Tech and DPA Microphones, all Danish companies, supplied special gear for the event.

INDUSTRY NEWS

Ryhaan Williams

Audio Analysts (Colorado Springs, CO) appointed **Robert "Bob" Langlois** to VP of worship design...Former senior VP/technology merchandise manager for Guitar Center **Gene Joly** joins **Musician's Friend** (Medford, OR) as senior VP of merchandising...**Anders Uggelberg** is now leading **Alcons Audio**'s (Netherlands) cinema market development...Based out of **Euphonix**'s (Palo Alto, CA) New York office, **John Mozzi** is the company's new director of sales, Eastern U.S. region...**Ryhaan Williams**, former project manager and client relations manager for Venue Services Group, joined **Gepco** (Des Plaines, IL) as Eastern regional sales manager...**Sennheiser** (Old Lyme, CT) appointed **Patrick O'Neal**, Western regional market development manager, and **Marke Burgstahler**, Northern California/northern Nevada sales representative... Supporting **Audio-Technica**'s (Stow, OH) Audio Solutions department is **Todd Campbell**, audio solutions specialist; the company also named **JAM/Erikson Audio** (Quebec) for Canadian distribution... **Nichole Ortiz** joined **L-Acoustics** (Oxnard, CA) as the company's sales and marketing coordinator...New distribution deals: **HHB** is **Millennia Media**'s (Placerville, CA) exclusive UK distributor; **Telex Communications Pro Audio Group** (Burnsville, MN) appointed **Left Coast Marketing** (Redmond, WA) as new Pacific Northwest sales reps; representing **Shure** (Niles, IL) in Michigan is **Audio Biz Inc.** (Lakemoor, IL); and **MI7** (Malmoe, Sweden) will distribute, support and market **DTS'** (Agoura Hills, CA) surround encoding products in Norway, Denmark, Finland, Belgium, Luxembourg, Portugal and Spain.

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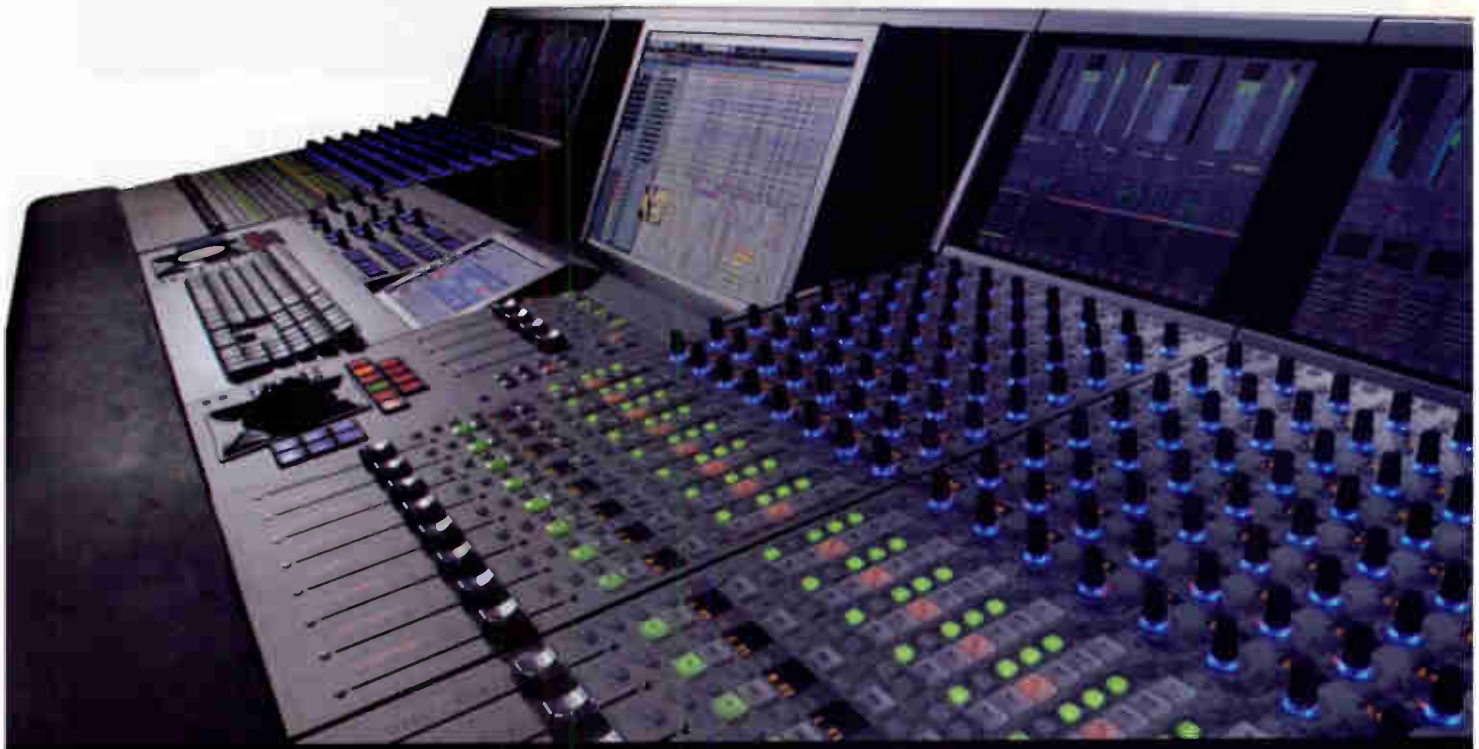

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NOTES FROM THE NET

GIVE THE CONSUMERS WHAT THEY WANT

Just after the AES show doors closed, Microsoft and Real Networks announced that RealNetworks has settled its antitrust case against Microsoft (filed in December 2003) and the two companies have created a partnership to create more choices for the consumer in the digital music and games industry. Included in the partnership is Microsoft's promotion and marketing support of RealNetwork's Rhapsody digital music subscription service on MSN properties (as well as promote use of Windows Media technologies with Rhapsody to Go) and offering RealNetworks' digital games through MSN Games and Xbox Live Arcade for Xbox 360. In doing this, Microsoft will pay Real $301 million in cash and provide services during the next 18 months to support the product development, distribution and promotional activities.

Meanwhile, another player has joined the field: MusicGiants Network, which offers high-definition digital recordings from EMI Music, Sony BMG Music Entertainment, Universal Music Group and Warner Music Group. Downloads are priced at $1.29 each (as compared to Rhapsody's $0.49 and iTunes' $0.99 each) and are offered in Windows Media Audio Lossless format (1,100 kbps). To start, users must have a PC running Windows XP or device that supports Windows Media Audio Lossless and Windows Media DRM, register online, download (or via CD-ROM) MusicGiants' Network software and open an account by paying the $50 annual fee. MusicGiants will then credit the customer's account with $50 for music purchases.

Looks like competition against Apple's reign in the digital music domain is heating up—although Apple, which owns 80 percent of the market, is making continual strides in the marketplace.

The next day, Apple announced iTunes 6, which adds more than 2,000 music videos and six short films from Pixar Animation Studios for $1.99 each. Also, the company inked a deal with Disney, whereby current and past episodes of *Desperate Housewives*, *Lost*, *Night Stalker*, *That's So Raven* and *The Suite Life of Zack & Cody* will be available through the music jukebox and online music store for $1.99 each. Customers can purchase and download these shows from iTunes the day after they air on TV, watch them on a Mac or PC and auto-sync them to the iPod. iTunes 6 is available as a free download at www.apple.com/itunes.

While competition in the digital music domain is becoming fiercer, the underlying key to success is giving consumers what they want. Case in point—the first Platinum commercial download: Gwen Stefani's "Hollaback Girl." The track will also soon cross the 1 million mark in ringtone sales.

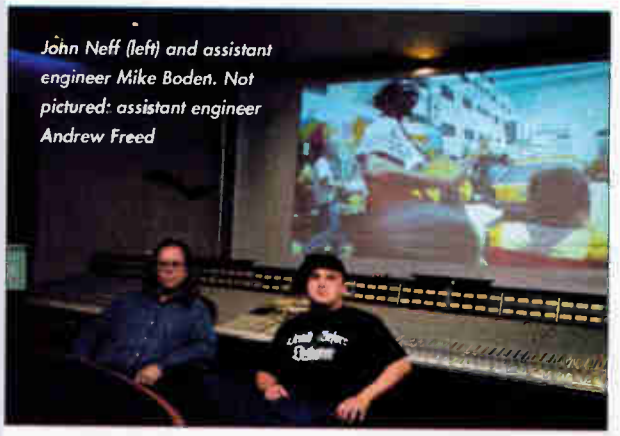
According to Jimmy Iovine, chairman of Interscope Gefen A&M (Stefani's label), "The music industry is changing, and this is a major sign that digital downloading has reached the mass market and become a very significant business."

CHUNG KING BRINGS IN PRO TOOLS

Home to scores of Platinum recordings by the likes of Jennifer Lopez, Justin Timberlake and will.i.am, among many others, Chung King Studios (New York City, www.chungkingstudios.com) purchased three fully loaded Digidesign Pro Tools|HD systems (including several new Apple G5 computers and 23-inch Cinema displays) through GC Pro. The gear will be installed in three of the studio's five main recording and mixing studios. In addition, founder/owner/CEO John King is planning to build an additional five to six demo rooms for his newly formed Chung King Records.

From left: Chung King studio manager Glenn Swan, John King, facility coordinator Darren Bartlett and operations manager Joe Demby. Not pictured: head technician Billy Cameron

NEFF PLANTS POST WORK



John Neff (left) and assistant engineer Mike Boden. Not pictured: assistant engineer Andrew Freed

San Francisco Bay Area–based audio engineer/film mixer John Neff recently completed a mix of Michael Franti's new documentary film, *I Know I'm Not Alone*, at The Plant Studio's The Garden Studio in Sausalito, Calif. The film looks at the lives of people living under foreign military occupation, specifically in Iraq, Palestine and Israel. Neff mixed using Pro Tools|HD and numerous Waves plug-ins. The film's mix stems were monitored and folded down in the studio's SSL 8096 console.

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The Mastering Lab

By Heather Johnson


PHOTO: EDWARD CULVER

PHOTO: GUS SONAS

The Mastering Lab offers unobstructed listening from this spot. Inset: Doug Sax

Grammy-winning mastering engineer and audio pioneer Doug Sax looks out onto very different vistas these days. From his new 5.1-equipped Mastering Lab studio in Ojai, Calif., windows to the outside reveal the Topa Topa Mountains, pink skies at sunset and two horses grazing across the street. Much different than the Toyota dealership across the street from his successful Hollywood facility, which he's owned for 38 years. Inside, his original two-room facility, which is still running full-throttle, looks like most mastering houses: An engineer sits at a mastering desk with equipment in front of, below and maybe behind him, with speakers to each side and out front. But at the Mastering Lab-Ojai, Sax and guests listen to surround and stereo mixes unencumbered, with no console or computer screen blocking the way of their eyes and ears.

"In surround, you have much more listening to do than in 2-channel, and for me, I have to hear [a track] through," says Sax. "I found that I was doing a couple of changes and then a lot of listening. That's when I got the idea of, 'Why have anything in front of you?' When you work in this room, there's nothing between you and the speakers—any of the speakers. It makes the sound extremely clear, and what you want to do with that sound becomes more obvious."

Sax listens on a customized ATC SCM150A 5.1-channel monitor system, comprising five ATC SCM150A loudspeakers and an ATC 15-inch subwoofer installed in the front wall. "The front three speakers are not free-standing, they're soffit-mounted. But the soffit is not the full height of the room. We came up with this half-wall. It really works because the room feels large and the speakers are really allowed to do what they do."

Sax had multiple reasons for opening a second facility. He wanted a dedicated surround room, but not in L.A. because he and his family had plans to relocate. After a few visits, they settled on (and in) the small artistic community of Ojai, which is situated 75 miles north from the original Mastering Lab—close enough for his L.A. clients to attend a session or for Sax to commute to work with clients such as Ed Cherney, whose schedules don't always allow for the 90-minute drive. Plus, he knew that to create the best possible surround environment, he had to build from the ground up. "A 2-channel room modified for surround is not good. But a room built from scratch to optimize surround monitoring can also serve as a perfectly wonderful 2-channel room."

Sax—with experience building rooms at MGM Studios and at a site on Big Bear Lake, as well as serving as part of the original Mastering Lab design team in 1968—teamed up with Los Angeles–based designer Rick Ruggieri to build his new single-ended facility. Like the original, most of the Mastering Lab-Ojai's equipment is custom-built, including the transformerless tube console, complete with big knobs resembling the custom boards of the early '60s. EQs and other outboard equipment are also handcrafted, save for a GML Digital EQ that, admittedly, has *not* been modified!

The desk and console reside behind the head engineer's chair, while the controls for the SADiE DSD 8 workstation sit on the opposite side of the desk. The IBM-based SADiE computer resides in the machine room together with power supplies for all of the tube equipment. The two-person setup puts Sax in the driver's seat, where he can flip around after listening to a track and make adjustments on the console, while another engineer mans the SADiE, which would be used to record Sax's modifications. The SADiE Series 5 offers full editing and mastering of 64fs DSD signals and incorporates authoring facilities for SACD. So while the Mastering Lab can accommodate pretty much any format on the market, Sax keeps his eye on surround. "Right now, surround is very quiet," he says. "But we all expect it to slowly pick up, even though the industry has done everything they can to kill it by having competing formats."

Getting a project done correctly is what gave the Mastering Lab its edge in the days of the LP and keeps the studio on top in an era of CD, DVD, SACD and myriad other mediums. "When I started, everyone said, 'Why do I need you? I just turn my tape into Capitol or Columbia and I leave.' And I said, 'Because we can do it better and we can fix things.' And when we opened our doors in '68, nobody gave a damn because they really didn't know what we did. But by 1971, you couldn't get into the Mastering Lab. It was booked 24 hours a day."

Now, in the days of basement home studios equipped with mastering plug-ins and effects systems, studios such as the Mastering Lab still have to answer the 'why do I need you' question. But for those willing to turn their good-sounding project into a great one, Ojai's only a short drive (or FedEx slip or file download) away. ■

Heather Johnson is a Mix *assistant editor.*

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BY STEPHEN ST.CROIX

The Old Three-Way

Learning to Use Judgment

First, I feel it is only fair to warn you that this is a two-part column. I hate two-part columns. I despise two-part TV shows. Hell, I don't even like two-part epoxy. But sometimes there is so much to say that to cram it into a single column would require the elimination of all adjectives and verbs. So I choose, reluctantly, to use complete sentences and hope that you will bear with me.

And so we begin.

There are three ways to buy things. I don't mean retail, Internet or from your cousin Joe who just got out again. I mean three basic attitudes, three approaches.

ONE IS THE LONELIEST NUMBER

First, the easiest—you just buy the best. This is certainly the simplest, as it requires minimum judgment and specific education about the product you are buying. Life was pretty easy for Thurston Howell III before the three-hour tour in spite of his comic naiveté. He was rich enough to buy the best, and rich enough to pay others to tell him what that was.

All that is required is that you ask your rich friends what brand of yacht, car, TV or amp they like the most, and you get one. All it takes is bucks. Easy.

A SIDE NOTE FROM THE OTHER SIDE...

I spent my life doing the absolute best I could—best engineering, performing, surfing, welding, whatever—for a reason. My companies make the best products possible for the same reason. And this may not be what you think.

Certainly I appreciate quality, and I want my stuff to be as pure and solid as possible. It's a personal thing—some might say ego.

But there is another core reason why I do this. It is *easy*. I don't have to spend time guessing what compromises I can get away with to save money on parts or make a cheaper chassis. I don't have to evaluate lower-priced capacitors to see if anyone can hear the difference or if they fail sooner. I just find and use the best of the best.

So if my designs are correct and significantly superior, and the quality of the components are maxed out, and failure margins are insanely high, manufacturing yields are great, field failures are minimized and sales? Well, I guarantee you that the easiest sale in the world is hyper-high-end stuff. This stuff sells itself, as there is nothing else to compete with the best.

From speed boats to sushi, the best is easy to understand. It's just a little hard to pay for. But...the world is full of those who can and even more who can't but do anyway.

AT LEAST IN STEERAGE, YOU GOT FRIENDS

Then there is the *last* way, and the second easiest. Buy the *bottom* of the line, the cheapest thing that gets the job done. Pretty easy, as price is by far the dominant factor in your choice. You know it won't be the coolest, fastest, brightest or loudest, but it will be the smallest cash outlay possible. All it takes is price shopping, a bit of research on reliability and luck. And hope that it doesn't break when you get it home.

This is certainly not an invalid path—finances may simply dictate it. It's just that it's a bit more dangerous as performance and quality deception climbs heavily as price drops. Online user opinions are essential if you play here.

I don't have to spend time guessing what compromises I can get away with to save money on parts or make a cheaper chassis. I don't have to evaluate lower-priced capacitors...I just find and use the best of the best.

AH, MOR—THE PATH MOST TAKEN

And that leaves the middle way. This is by *far* the most complicated purchasing position. It takes a huge amount of research and understanding to make the best decision on this road. You must discover the entire range of product available. You must have a very clear picture of how you plan to use it and what you want from it. It also takes a good understanding of price ranges and how they have shifted historically. And last and probably most importantly, it takes a clear understanding of compromise, the most adult thing most of us are called on to do.

Personally, I have always preferred the two extremes. I am more comfortable there and have been most happy with purchases made there.

Why buy some super-crappy MP3 player when I can get a real iPod for one-third more? I mean, it's a toy, right? Personally, I have a well-developed, obnoxious elitist attitude when it comes to truly elective purchases. If I can't afford the toy I really want, I generally don't buy any lesser version; I just stay away and get some totally different kind of toy that costs less.

In A/V, I generally get the best because I can easily hear and see the difference. Now, don't get me wrong, the "best" is often not the most expensive. Take plasmas. I buy commercial panels, slabs of glass with no bells or

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whistles at all, as opposed to fancy hand-polished lacquer consumer versions with tuners, speakers and stands—none of which I use. I pay exactly half as much, and the picture is identical, if not better. For my application...The Best.

I drive a tiny Subaru WRX station wagon. I love it. I live out in the deep woods, need 4-wheel drive and room to bring home iPods and plasmas, and like to go fast. The Subaru is amazingly fun to drive, wicked fast, climbs ice walls and looks just like every other Subaru out here.

I have added certain personal touches, as I enjoy doing that sort of thing. It is the car that got all that Dynamat Extreme discussed in some past column [February 2003], the audio and nav systems from hell and some, uh, engine mods.

But still, it is without a doubt the most performance and fun for the absolute least amount of money that I could find. Pretty easy decision.

It is only fair to own up to an automotive dark side, as well, I suppose. I am also in possession of automotive technology that clearly represents the other extreme, in the one-off custom class and in, well, just extreme class. Specific toys that exist for the sole purpose of experimenting with the feeling of the maximum something on earth—speed, power, comfort, whatever. But see? I am most comfortable at either end (or both).

AND NOW FOR SOMETHING COMPLETELY DIFFERENT

Somewhere along the line, between getting smashed by a tree, crushed by a truck and drinking beer on French beaches, I got married.

I voluntarily signed up to have another person in the house full time, a person with equal input on subjects such as maximum allowable speaker and screen size.

Now luckily for all, she is a hard-core techie who actually *beat* me the first time my bike went up against hers. Yeah, yeah...before I get "dear wuss" letters, keep in mind she had a crotch-rocket and I had a Harley. She went fast; I looked cool and scared innocent citizens. We can't lose sight of what's really important here.

Soon the time came to plop a screen, seven speakers and four subs into a totally glass living room. Mmmm. I found myself faced with a new situation. Of course I needed proper sound, but neither of us were willing to go the full-tilt super-geek approach and brick up all that glass and add 40 inches of acoustic treatment to each wall.

Nope. The time had most definitely come in my life to learn to, uh...c-, co-, *compromise*. Oh, that is *so* hard to say!

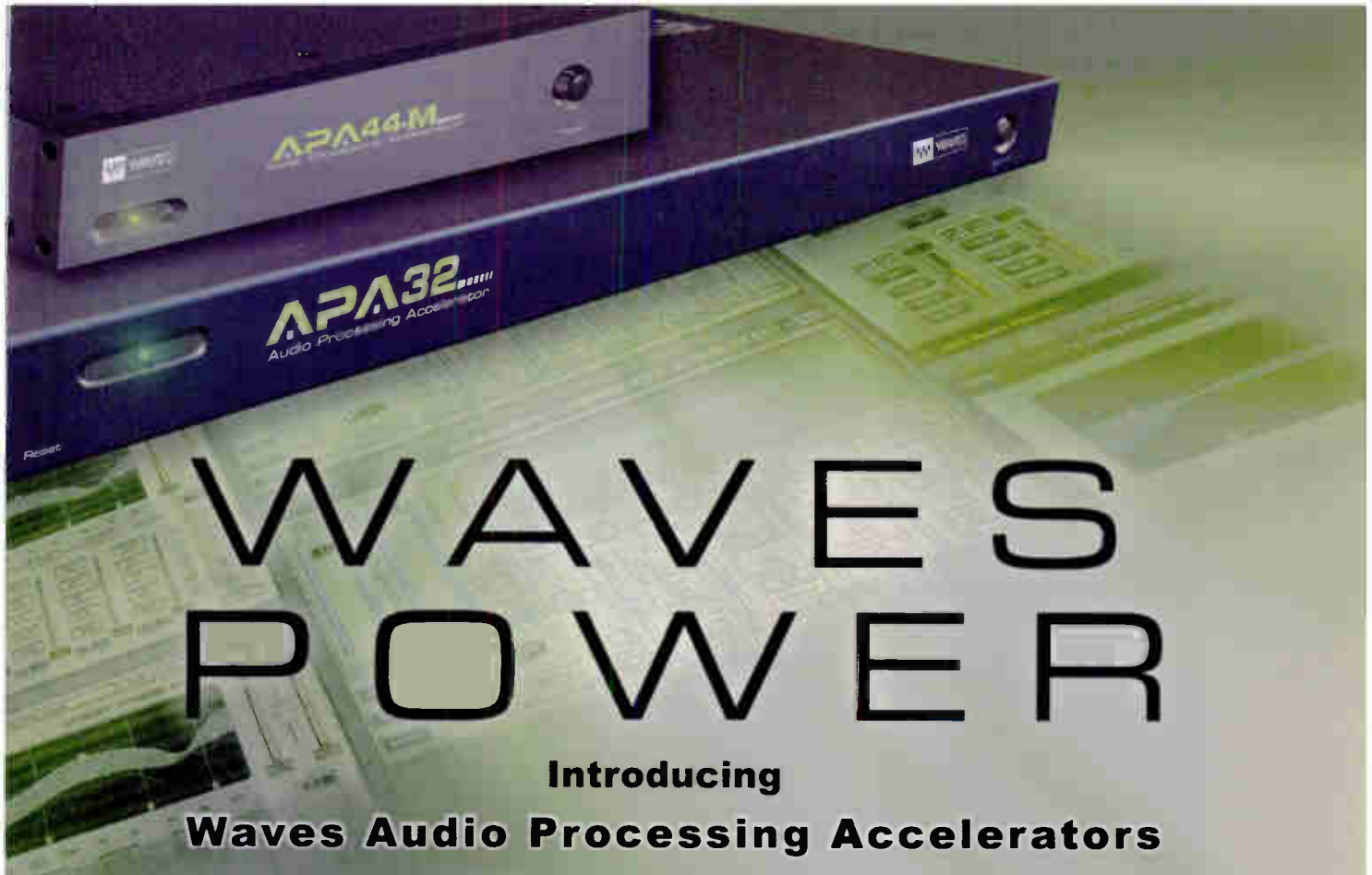
It wasn't just the wife. It wasn't just the glass. I guess it was the two of them together that put me here. Or maybe I just grew up a little. Wait, let me think...No, that's not it.

And so I began a yearlong quest to find the gear for the job. Gear that did 90 percent of what I want while being 90-percent invisible. No hideaway doors or other stupid tricks—this gear all sits out in the open on a naked wood floor in the sun, along with the cats.

Next month, I will report on how my first brush with compromise (uh—*still* hard to say) went, what gear ended up here and why.

I will tell you that now is an amazing time to compromise! I discovered two new audio technologies, one of which I have been wanting for years. I even replaced certain studio gear with gear I discovered during this quest. And this parting thought—my last DVD player cost $2,500. The one I just got cost $199 and eats it alive. Ch-, ch-, ch-, compromise. All the details next month. ■

Life gets ever more complex even as it simplifies.



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BY PAUL D. LEHRMAN

The Masters Come Alive

New Recordings From Very Old Musicians

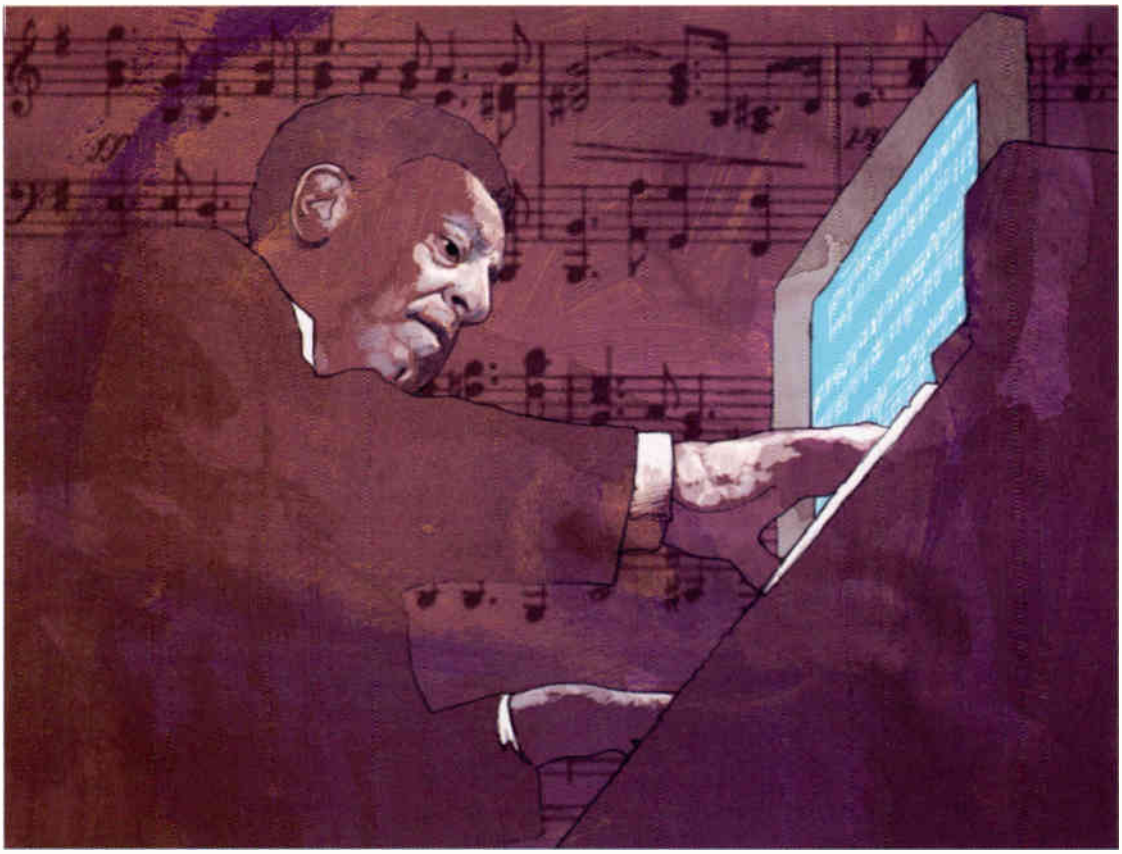

ILLUSTRATION: DAVE REINBOLD

What is the point of restoring a historical music recording? Is it to re-create the recording session so we can hear the original instruments, the room in which they were recorded and everything that their sound passed through, good and bad, in the signal chain? Or is it simply to listen to the music?

Amazing things are now possible in audio restoration, and we have techniques to remove noise, room resonances, frequency anomalies and distortion that no one could have dreamed of 25 years ago. But what if we could take away all of the circumstances and equipment surrounding the music and have the actual performers—ignoring the fact that they've been dead for decades—play in front of us on real musical instruments?

That's the goal of pianist-turned-computer-scientist-turned-musical-researcher John Q. Walker and his crew at Zenph Studios. And at one level, they seem to have accomplished that goal. They've also managed to achieve, in a limited but important way, one of computer music's Holiest of Grails: polyphonic pitch extraction. But their process is not going to show up as a plug-in any time soon.

Simply, Walker's group of scientists, programmers and musicians is analyzing piano recordings of many different vintages, translating them into MIDI files and reproducing them on a high-tech player piano: a Yamaha Disklavier Pro concert grand. But in the process, they are redefining audio analysis, extending the limits of what a player piano can do and even expanding the meaning of MIDI.

Their work has been getting a lot of ink in the trade and popular press, but while the coverage has concentrated on the "miraculous" aspects of the process —"Art Tatum comes alive in your living room!"—the nuts and bolts, and the truly innovative engineering processes he's put together, have been largely passed over. Much of the reason for this is that the technology is very specialized and very complicated. And some of it is due to "hand-waving" on the part of Walker: that academic practice of diverting the audience's attention when you don't want to—or can't—describe a process or solve an equation. But that's understandable as a lot of his concepts are patent-pending.

In fact, Walker is a talkative and truly amiable fellow as I discovered when I sat down with him and a Disklavier Pro grand piano in a relatively quiet downstairs demo room at the recent AES conference. Seeing as how I know MIDI, I know something about piano repertoire

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and I happen to know a lot about Disklaviers, I was his perfect audience. I learned a lot about what his team has been doing, and I was impressed.

Walker grew up in Texas and Illinois, and started playing the piano at age five. He got a college degree in piano performance, and one of his teachers was Ruth Slenczynska, who had been one of only two students of the legendary composer/pianist Sergey Rachmaninov. But he also got a math degree, and then went on to a Ph.D. in computer science and went to work for IBM. Some 17 years later, he founded a company that made tools for measuring network performance. When that company was sold to a larger firm, he had the freedom to go back and work on music again.

[John Q. Walker] summarizes his work with a one-sentence question: What would it take to hear Rachmaninov, who died in 1943, play again?

But he wasn't interested in performing; rather, he wanted to apply his computer skills to historical performances, and Zenph was born. As for the name, "It's the German word for mustard," he explains, "although they spell it 'senf.' Our previous company spent a lot of time trying to find a name and went through 400 or 500 of them. Zenph was a leftover, and since we already had the domain name, we just went with it."

He summarizes his work with a one-sentence question: What would it take to hear Rachmaninov, who died in 1943, play again? Part of the pianist's legacy is preserved in recordings that are plagued with all of the problems of early records. There are also performances that are preserved on player piano rolls, which the pianist made using one of the "reproducing pianos"—player pianos that let a pianist record music in real time, as opposed to making rolls with manual punches—that were popular in the early part of the 20th century. But player piano rolls, even reproducing ones, says Walker, "don't have enough bits. If you have three holes in a row that are the same note, they're played identically. A real pianist never plays two notes the same way." Early reproducing pianos also lacked subtlety when it came to dynamics; they specified a limited number of dynamic levels, and having simultaneous notes sounding at different dynamics was impossible.

We now have player pianos that can be controlled with far more accuracy and subtlety such as Yamaha's Disklaviers, which use an internal computer and a complex array of high-precision servos, sensors and solenoids to operate the keys, hammers, dampers and pedals. But most of the Disklavier line still isn't up to the task that Walker had in mind. "We had to wait until the hardware got good enough," he says. "The answer was the Disklavier Pro. It has 10 times the precision of the other Disklavier models. Every note-on has 10 velocity bits, not seven. Every note-off has 10 bits, too, and that's important for articulation sense, which is how you pull your finger off at the end."

The Disklaviers are MIDI instruments, but even with its sub-millisecond accuracy and 127 velocity and volume levels, MIDI can't handle everything the Disklavier is capable of. So Disklaviers use something Yamaha calls "high-resolution MIDI," which Walker figured out uses non-registered parameter numbers—which are undefined

—CONTINUED ON PAGE 137

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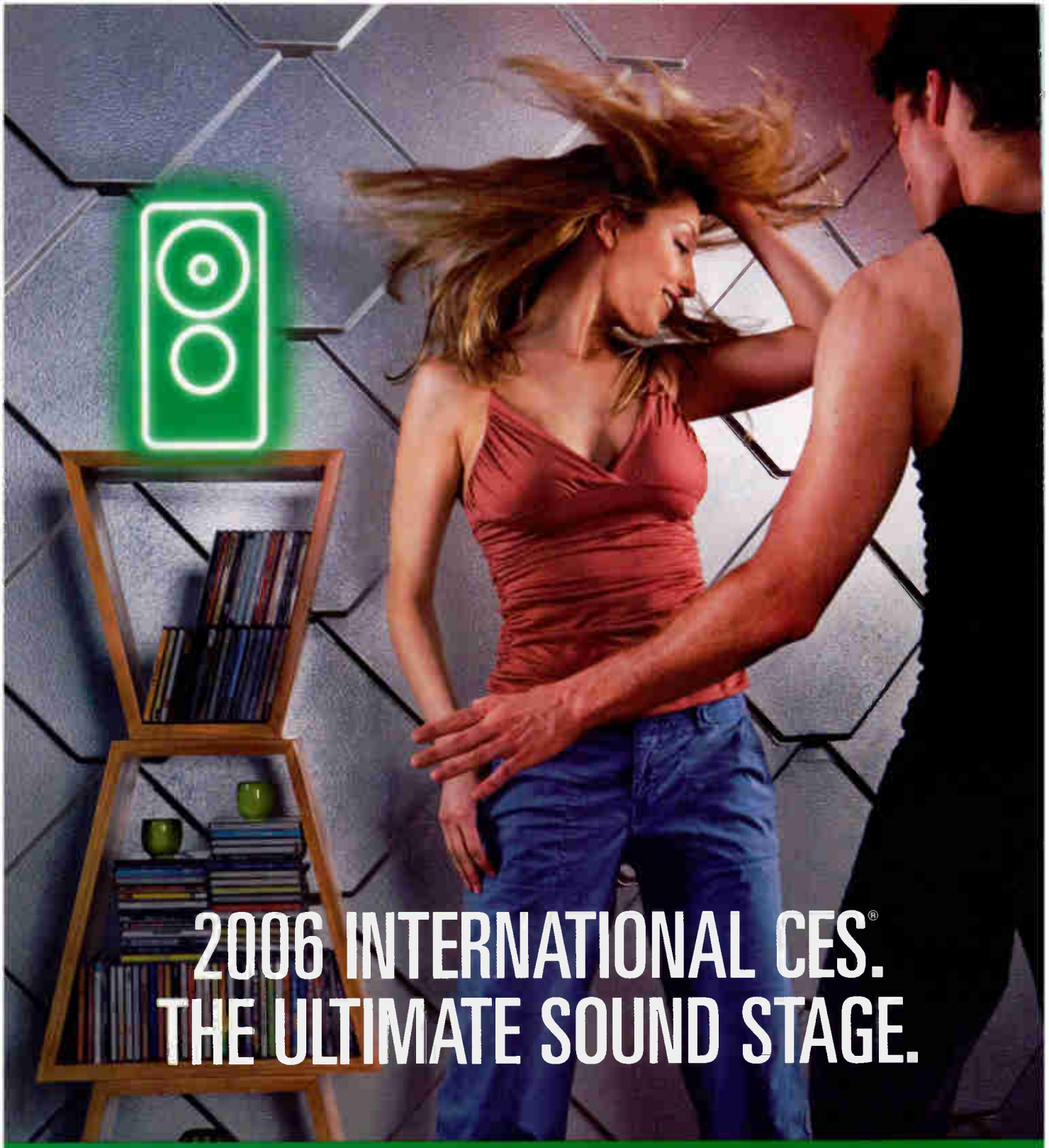

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The Big SQUEEZE

BY SARAH JONES

Music mixes have always been defined by the release format. Back in the days of vinyl, physical limitations forced artists and engineers to weigh issues such as volume and EQ against track length. Later, cassette brought along its own advantages (and limitations), but digital really rocked the production world. When CD came along, engineers rejoiced in its increased dynamic range and reduced noise floor; it seemed the sky was the limit...

Actually, 0 dBfs was the limit. And unlike forgiving analog, there was no wiggle room. Yet over time, musical peaks, and then average volume, crept closer and closer to that limit, in time exhibiting squashed dynamics, increased clipping and flat-topped waveforms—a new "wall of sound," so to speak.

There's no denying that music is louder today than ever before. And the people closest to this issue, those in the trenches, are mastering engineers. It would be easy for them to throw up their hands in frustration, chalking up their woes to radio-obsessed record labels, a new production aesthetic or even a larger movement catering to an iPod-centric population with no concept of dynamic range or even active listening. But the truth is, if you ask 10 mastering engineers about the state of affairs, you would get 10 different answers. Not all music is loud. Not everyone equates loudness with dynamic range, and certainly not everyone thinks louder is bad. The one common denominator is most feel that the loudness argument is played out and it's time to move on, to get beyond the "death of dynamics" rant and create the best mixes they can within a new sonic framework.

THE HISTORY OF HOT

"I've been at this a long time and this loudness war is nothing new. It's been going on probably since dirt, and it's not going to change," says MasterMix's Hank Williams, who—in three decades of mastering projects from Platinum artists Tim McGraw, Reba McEntire and Toby Keith to indie projects—certainly sees the big picture when it comes to the Nashville country scene and mastering in general.

The long-standing loudness issue is a given, but the problem has grown out of control in recent years, say many engineers. Bob Katz, who's been recording since the early '70s and mastering out of his own facility, Digital Domain (Altamonte Springs, Fla.) since 1990, quantifies what he sees as a crisis: "There's a 12 to 14dB apparent loudness difference between Black Sabbath, produced in 1977 or so and transferred to compact disc in the early '80s, and the Black Eyed Peas' 'Let's Get It Started,'" he says. "The difference between the loudest records and even the reasonably well-mastered records became so great that I can't even make a reasonably loud 'normal' record without people complaining that it's too low."

Katz, who has worked with a full range of rock, pop, classical and jazz artists—including 150 records for the audiophile Chesky label, where he once served as technical director—paints a grim picture. "About three weeks ago, a very well-known jazz pianist, with a trio of some of the finest jazz musicians on the planet, said that he loved his master, but, 'It's not as loud as some of the more recent things, so I'm willing to sacrifice its sound to make it a little more competitive, loudness-wise.' I'm thinking, 'It has come to this? Why would you have to be the least bit concerned about a jazz recording being "competitively loud"?' I've heard that even some classical musicians are beginning 'loudness envy.'"

Though most engineers acknowledge that today's music is louder, they don't live in constant fear of squeezing the mix. "That's the gig, you gotta rise to the occasion," says Stephen Marcussen, head of Marcussen Mastering in Hollywood. "If it's difficult, it's difficult. It's part of what we do. I have no problem if somebody comes in and makes an aggressive record; I quite enjoy it. But you're talking to a guy who's been accused of making records too loud." Marcussen—whose resume spans Stevie Wonder's 1980 Platinum album *Hotter Than July* to recent work with the Rolling Stones, Wolfmother, Audioslave, Gillian Welch and Jaguares—says some artists are even asking for lower volume. "Artists have come in and said, 'Okay, make my record as loud as you can; now, turn it down 3 dB,' which I thought was a nice, refreshing change in my world."

Nashville mastering engineer Bob Olhsson, who's been around since the Motown days, agrees that most would like to see average levels go down. "There are brave souls," he says. "There's an Alan Jackson record out right now [*What I Do*] that's about 8 dB below average, and I think it sounds way better, especially streamed or as an MP3 file or something."

Williams, who mastered that Jackson release, says he's fortunate to work with established, involved artists. "Alan [Jackson] has some very specific things that he does and does not want done to his records, and I can tell you from my standpoint, those records do not suffer on the radio from being lower in level. It doesn't happen. So the answer to the question

Mastering Engineers Debate Music's Loudness Wars


Stephen Marcussen


Hank Williams

is, what's the point of this dynamic range war?"

Marcussen admits that engineers who voice frustration about the lack of dynamics make a valid point, but stresses that, ultimately, the client drives the master. "So it would be great for me to take a hard-line approach, but that's not the reality," he says. "The reality is that the guy I'm working with wants to be competitive in today's world, so I think you have to respect the fact that there is good in having loud CDs. I didn't say it was *all* good, but there is good."

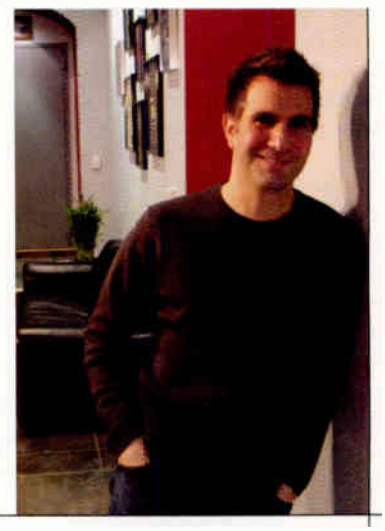
HOW DID WE GET HERE?

Various factors have contributed to music's increasing loudness, but many point to our arguably most popular listening environment as the biggest culprit. Recently, noted mastering engineer Doug Sax—in an AES talk entitled "Whatever Happened to Dynamic Range and Why?"—put the problem succinctly: "The biggest virtue of the LP record—and why dynamic range is gone—is that it could not be played in the car."

With our cars (and increasingly our iPods) serving as our main listening environment, nobody will deny that music is suffering in its surroundings. But how much blame is legitimate here? "You couldn't play LPs in the car; you listened at home and you had a pretty good stereo system, and you could enjoy the dynamic range of the recording," says Katz. "In the car, there's too much noise. But the dynamic range of many musical recordings has been reduced far beyond what is necessary to make it work in the car, so that particular reason or excuse has long passed. The fact that people are listening less critically than they used to is definitely a contributing factor."


Bob Katz

The issue is sometimes compounded by lack of experience on the mixing side. Joe Lambert is a mastering engineer at Trutone in New York; he regularly masters all genres of music, from Kanye West to Ted Nugent to Stephen Sondheim. He collaborates with both seasoned and newer mixing engineers—and hears a difference. "Before, you had 10 guys mixing records and 10 guys mastering records, and they all worked for record labels; everything was very controlled, very well-organized," he says. "And then all of a sudden, you could buy your own CD burner. People started recording at home and they just didn't keep up with professionally mixed and mastered productions. But they can't hear why. They don't know that it's not just levels; they don't know that it's the proper balance between the highs and lows, the dynamic range—a combination of all these things. That's what makes


Joe Lambert

the art of mastering what it is."

Katz adds that up-and-coming engineers often emulate squashed masters, which perpetuates the issue. "The easiest thing for any mastering engineer to do is make the master just a little bit louder than the mix," he says. "When you combine that with mixing engineers more frequently emulating finished masters, it becomes a vicious circle."

TOO MANY COOKS

The pressure to "make it louder" comes from all sides. "Motown was notorious for cutting some of the hottest 45s in the industry," says Olhsson, who cut his teeth mastering hits like "Signed, Sealed, Delivered." "Why do that? It all comes down to a bunch of people listening to five records, and four of them are gonna go into the wastebasket. Well, an artist, a manager, an A&R person or anybody who happens to be hanging out in that circumstance is going to quickly notice that something that is at a lower level is at a pretty big disadvantage. So there's great paranoia that drives the level thing."

Placing all the blame entirely on the record labels, however, would be missing the big picture. "Here in Nashville, with my major-label clientele, the labels are not really driving loudness wars or dynamic range," says Williams. "Now there are producers and engineers who might request that of me, but it doesn't come from the label."

And mastering engineers aren't the only ones feeling the squeeze. "It's a chain of events that happens," says Lambert. "There's pressure on the mix engineers now because when they mix the song, they give it to the client and the client doesn't understand why it doesn't sound as loud as Mariah Carey's record or Aerosmith's record or whatever band they listen to. And part of the reason is because it's not mastered."

Genre and production aesthetics also play a part in shaping—but don't categorically define—dynamics. Marcussen approaches each project on a case-by-case basis, but says that different genres can sometimes call for a particular approach to dynamics. "With dance music, for example, when you are in a club, it's beneficial to have a louder CD. It's more exciting, you're not sitting there scrutinizing the sound; it's more of a gut feeling rather than an intellectual comprehension of somebody's work. So I think there are genres of music where it's appropriate to make screamingly loud records."

Olhsson stresses that, to a certain degree, the nature of the source materials dictates how loud the music can get. "That's how we got into all this digital stuff—with the introduction of samplers and electronic music that didn't have the kind of peak values that acoustically sourced music has."

Katz agrees. "A sampled drum set just doesn't have the transient response of a real drum set, nor does it have the impact that a real drummer has when he hits something loudly to his own musical feel. That also contributes to the highly compressed feel of the recording."

Lambert, who's mastered punk rock and musicals in the same week, says that overall, he applies the same philosophical approach regardless of style. "The goal is to make it easy for the average person to enjoy, to make it magical-sounding. It really doesn't matter to me if it's a metal song or an opera. It's about listening to the elements and saying, 'What's going to make this track come alive?'"

Ultimately, mastering is a service industry, which requires balancing sonic ideas with artist needs. "My vision is my client's vision," says Williams. "I'm not here to put every record into the same bucket. That would be Dante's 12th Circle of Hell if I were here to make every record sound exactly the same and have the same dynamic footprint or EQ footprint or whatever. Fortunately, I've got clients that all have different takes on how things should be done."

"At Motown, we took getting songs on the air very, very seriously," says Olhsson. "On one level, we wanted them to be good; on another level, we wanted them to be listenable, and we definitely did not want somebody else's record to leap out of the speakers as compared to ours. So it's compromising: You have to take all the factors, including experience, and put it in the context of the current market for that specific genre of music."

Olhsson learned early on to benchmark himself against the competition. "I make sure

The New Wall of Sound?

A VERY UNSCIENTIFIC LOOK AT THE EVOLUTION OF DYNAMICS

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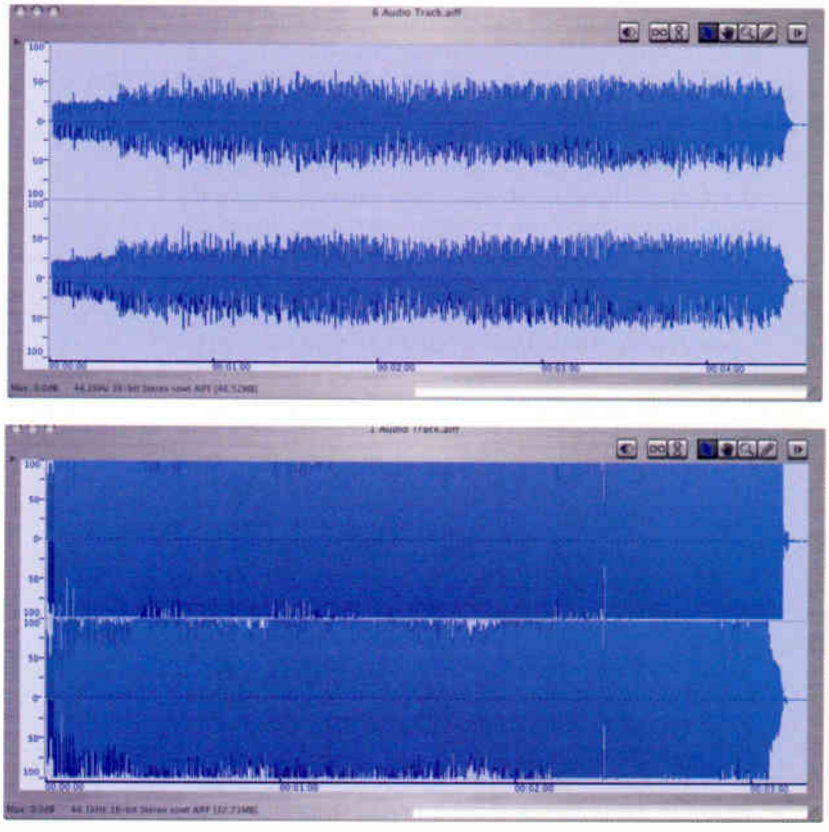

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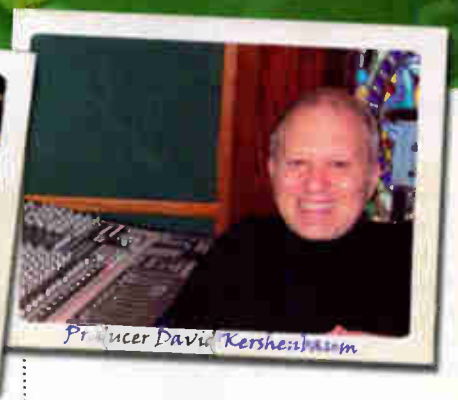

[Joe Jackson, Bryan Adams, Tracy Chapman]

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that I'm familiar with what my recordings are going to be compared to, and I try and put myself on a conservative but still effective side of that," he says. "I don't want to just knee-jerk and turn stuff way up when there's no reason on earth for it to be that way."

EVOLVING WITH THE TIMES

When asked if they're mastering differently in the context of smaller dynamic range, engineers are philosophical. "I think it's an evolution of where I started, going back to 7-inch 45s, when it was significant that they were louder," says Marcussen. "I think when you're raised in that environment, you keep your competitive edge and take it to the next level, whether it's CDs or MP3."

Lambert says that in addition to setting his console VU meters at -6 instead of 0, he hasn't made a lot of permanent concessions. "There's nothing that I do just to make a record louder," he says. "Everything I do is to make the record sound as good as I can—giving the client what they want while letting them know if I think we are going too far in volume and actually damaging the song." Having a beautifully equipped mastering room doesn't hurt, either, he admits, but he's never bought any specific tools to make a record louder. "I'm sure that there are people out there who find [those tools] useful, but anytime I see the word 'Max,' I know it's not for me," he says with a laugh.

That said, engineers can still employ a few tricks to boost the mix. "Downward compressors can take the snap out of the transients, but upward compressors, or parallel compressors, can retain the transients more," says Katz. "Another technique is to use several processors in a row and not push any one of them. If you start with a tube compressor or an optical compressor, or a combination of the two that has a very slow, gradual average response, you can raise the average level without losing too much of the snap." Katz also advocates the judicious use of more intelligent peak limiters. He describes these maneuvers, however, as reluctant damage control. "None of this would be necessary if this were 1992. In other words, we're pissing in the water to make it better."

OPTIMIZING SOURCE MIXES

There are a few ways mixing engineers can help preserve dynamic range at the mix stage. "Some people think it's a great idea to mix and get it all the way to what I'd call a 'mastered level' in their mix, and if that works for them and they can present the mastering facility with a good-sounding tape or file, I have no problem with that," says Marcussen. "People seem to find their own level of comfort in working; maybe it's a little dark, maybe it's a little bright—those types of things can be compensated for at the mastering level." That said, it's sometimes helpful to get a glimpse of what the client sees as the "faux final product." "Do I end up using their hyped one? Usually not," Marcussen says. "But it's helpful to use it as a guideline to see what the clients are looking for and how they want to take their product into the real world."

Olhsson adds that the louder the lead vocal could be, the louder the record would seem, effectively. "Some prefer to send over alternate mixes with a lead vocal up or down a little; I'd prefer to have them do it maybe no more than a half dB up or a half dB down," he explains. "When you put the peak limiting on, sometimes that will change the vocal's position a little bit and you can nudge it up."

Lambert asks the mixing engineers he

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works with to not use any limiting, but suggests an alternative. "Don't do anything just to make the record louder," he offers. "But once you're done with the mixes, if you want, run them through an L2 or some other type of limiter and just make them a little louder and give that master to the client."

Katz prefers that mixing engineers pass on mastering processing—especially peak limiting—and avoid clipping. "The rest is up to you aesthetically, but remember that dynamics are what make a recording lively, and if you're not sweating bullets when you're mixing, you're probably over-compressing. What that means, of course, is you should have to ride faders."

Williams advises mix engineers to keep perspective. "Here's a great example of what I don't want: When a mix comes in and never falls below -4 dBfs, and you call the mixer and say, 'Man, the client is asking me to do some things in mastering and my hands are tied because of the dynamic range situation. Could you ease up on that and give me some more versions?' And he says, 'Then my mix will fall apart.' Well, if your mix is going to fall apart, did you really even have one to begin with?" Williams stresses that this type of situation is generally the exception, "because the guys here in town are still mixing great records. And they allow the mastering houses the real estate to work with."

THE MUSIC STILL RULES

Ultimately, the quality of the music defines success, and the mix is a big part of that. "There are some people in the industry who know how to structure a mix with smaller dynamic range and still come out with a great-sounding record," says Williams. "My philosophy has always been the better it sounds, the better it sounds," adds Marcussen. "So if somebody comes in with a beautiful-sounding tape, whether it goes through the Internet or not, the better it sounds to begin with, the better it sounds in the end."

"The latest Tool record, *Lateralus* [2001], is not that loud," says Lambert. "But you know what? Nobody cares. It didn't affect sales of the record, it sounds awesome and, as a fan, you're going to listen to it for years. Some records will work really loud; others wear on you: They sound great the first two times, but then you just stop listening because they fatigue your ear. I know that and the engineers know that, but the consumer doesn't know why they're not listening to those records anymore."

Marcussen counters, "I don't want to be averse or buck my peers, but I don't see it as a problem. I see abuses of loudness as a problem, when the artifacts of loudness are unpleasant distortions that take away from the listening experience. But a really rocking, loud, well-mastered CD is great. It's fun, it's competitive, the music translates, the band gets its point across, the people involved with making the record are happy. What's bad about that?"

Sax summed up the mastering engineer's perspective in his AES speech: "If you process the music to win a shoot-out, the question I want you to think about is, would you like to listen to this yourself, for your own pleasure, in five years? And you'll find a lot of times that you won't, and that's a very sad state because maybe the music that's brought to you before you stood on it, before you competed with it, you liked and you could listen to it. And it was your hands that made it maybe not so listenable. Nobody else is going to hear that artist, ever, except for your signature that's on that."

MIX ONLINE EXTRAS

Sarah Jones is Mix's features editor.

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Every new student enrolling in our Audio Technology Program at SAE Institute in the US receives their own Apple iBook, iPod Shuffle, and Pro Tools LE digital recording system!

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SAFEGUARDING SONIC TREASURES

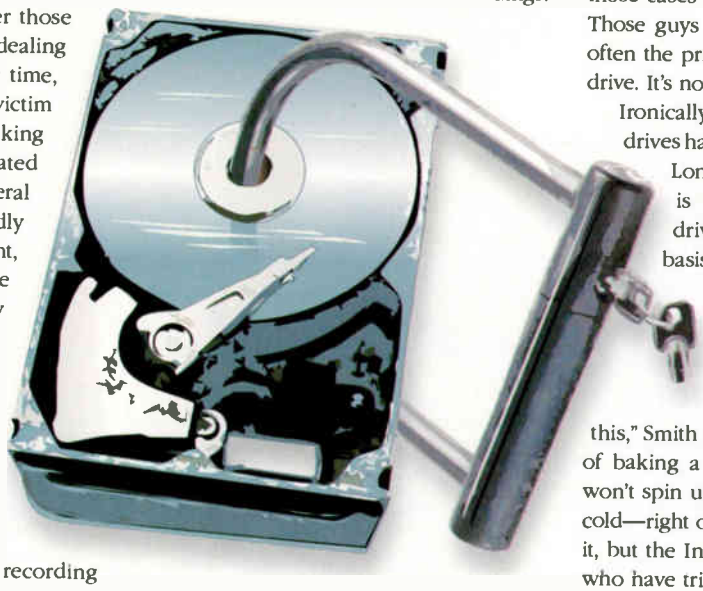
Long, long ago, in a simpler place and time, audio "storage" meant finding a dark, dry, cool place to park those 2-inch and ¼-inch tape boxes after a project was released. Backups were of little concern, as an analog "safety copy" was a compromised duplicate with increased noise. With the advent of digital recorders in the early '80s, clone tapes of digital multitrack sessions became a reality and older masters could be archived to a "safe" medium with no generational loss.

However, some 20 years after those first digital multitracks appeared, dealing with masters is no picnic. Over time, many beloved analog tapes fell victim to "sticky-shed syndrome," making them unplayable unless heated to 135 degrees or so for several hours. Although this was hardly a cure, if conditions were right, it might provide for a least one playback—this time, hopefully to a safer, archiveable medium. Now, those long-discontinued digital multitracks provide a new quirk: Finding a working vintage digital playback machine is difficult—ask anyone who requires a 3M 32-track or Akai A-DAM deck.

The rise of disk-based recording systems simplifies creating backup copies, especially with plummeting media costs and affordable, high-capacity hard disks. Yet we're hardly out of the woods. As the wheels of progress turn, formats/media from just a few years back may have vanished. Drives for yesterday's removable media—whether Bernoulli or Jaz drives or 5.25/3.5-inch floppies—are scarce. Even the venerable SCSI port—the standard for so long—has nearly disappeared from today's computers.

With endless storage options and file formats for modern DAWs, archiving multitrack master tapes for future playback is a complex issue, compounded by rapid changes in storage media and the fragile nature of data that is stored on such systems. Dropping an analog tape to the floor may result in a bent reel flange, while the same action with a hard drive spells disaster. Disk failures are subject to the "not if, but when" rule, making data backups an essential part of audio production.

"The problem is huge," says Maureen Droney, the new head of the Recording Academy's Producers & Engineers Wing. A forward-thinking committee of audio-minded P&E members—headed by co-chairs Kyle Lehning and George Massenburg—began drafting "The Delivery Recommendations for Master Recordings."



This exhaustive 27-page document (available at www.grammy.com/pe_wing) offers advice for short- and long-term master storage. Suggestions include the need to store DAW recordings as consolidated/flattened (no gaps between track segments) individual tracks in the Broadcast .WAV file format at 24-bit (or higher) resolution and sample rate at/above the master recording. Following this procedure, a multitrack project could be reassembled—regardless of the software or DAW program used on the original.

Yet even with such guidelines available, proper storage and backup in the music industry is often elusive. We spoke to a number of industry pros with expertise in differing aspects of the storage issue. As one might expect, this led to some answers—and more questions.

DISKS AND DATA

"Hard disks have become the new tape," says Steve Smith, an industry veteran who is now the president of Avastor, a company that markets data storage solutions to the audio and video industries. Despite being a supplier of high-performance drives, Smith is realistic about disk technology: "There's no middle ground. When a hard disk doesn't work, it really doesn't work. Drive failures are rare, but the alternative to not backing up in those cases is a drive data recovery service. Those guys are good at what they do, but often the price starts around $2,000 for one drive. It's not as cheap as baking a tape."

Ironically, like baking tapes, damaged drives have their own folk-style remedies. Long-term storage of a hard drive is not recommended unless the drive is "exercised" on a regular basis. "Almost everyone I've talked to who archives drives has said that after two or three years of sitting without spinning, some drives will tend not to spin. There's a possible cheap fix for this," Smith explains, "which is the opposite of baking a tape: You freeze a drive that won't spin up and then spin it up while it's cold—right out of the freezer. I haven't tried it, but the Internet is full of stories of those who have tried it with complete success.

"Most of the labels we've been working with are using a combination of FireWire 400- or 800Mbps drives. The most popular capacity being 160 GB, but lately, 250 GB has become almost as popular. Now we're selling lots of the new 500GB single drives. For longer-term storage, some people use data tape for archiving, mostly 8mm AIT and VXA [Exabyte] in audio. In very long-term storage, tape is still the way to go, but with AIT2 and VXA only having capacities from 30 to 80 GB per tape, backing up to tape can be time-consuming."

Smith does offer some practical advice: "I recommend reformatting a drive anytime you begin a project on a drive that's new, one you're unsure about or when you're reusing a drive." Less well-known is the "misnomer of 'plug-and-play' or 'hot-swappable' drives with

SONAR 5

PRODUCER EDITION

cakewalk

CONTENTS

Striking the perfect balance between passion and precision, SONAR 5 shatters the limitations found in ordinary digital audio workstations. Offering a complete spectrum of creative technologies, SONAR 5 inspires your artistic expression. These technologies are fully integrated within a cutting edge engineering and mixing environment to transform your musical dreams into professional finished productions. ■ For 35 years, Intel Corporation has developed technology enabling the computer and Internet revolution. SONAR 5 Producer Edition combined with the power and superior performance provided by Intel-based workstations gives you the perfect solution for composing, recording, editing, mixing and remixing music productions, and for providing voice over, score, sound design, and post audio for film, TV, video, commercials, and games. ■ With open support for industry standard technologies and hardware, the scalability of a native processing system, and virtually unlimited software capabilities, SONAR 5 Producer Edition on an Intel-powered workstation represents the definitive audio production environment.

Computer Music
Editors's Choice

Mix Magazine
Certified Hit

Pro Audio Review
Excellence

MIPA
Best Recording Software of 2005

Justin Lassen Producer/Composer/Remix Artist
Nine Inch Nails, Linkin Park, Evanescence, Madonna, Lenny Kravitz

"WHETHER I'M WORKING ON A HORROR SOUNDTRACK OR SPLICING VOCAL-EDITS TO THE NTH DEGREE IN A REMIX; CAKEWALK PRODUCTS HAVE ALWAYS BEEN MY FAVORITE SOFTWARE FOR MUSIC PRODUCTION–AND SONAR 5 IS THE BEST YET. I LOVE HOW THE INTERFACE IS SIMPLE AND STRAIGHTFORWARD AND ENABLES ME TO QUICKLY GO FROM CONCEPT TO COMPLETION, INCLUDING NOTATION!"

musician's choice

SONAR 5 was designed to allow you to quickly bring your inspiration to life, continuing Cakewalk's reputation of providing feature rich products that retain their elegance in ease of use. And to satisfy the musician inside, we include a spectrum of creative technologies, looping tools, and responsive instruments. As a result you will find that SONAR works with your creativity, rather than against it.

Customized to Work the Way That You Do

Each musician has their own way of setting up a project, and creating music. That's why we made SONAR completely customizable—from recording options, custom keystrokes and layouts, to color control of the interface. Version 5 adds Track Templates to save and recall all aspects of a sound or track set up including: mix, effects, and instrument virtual settings. This is just one way that SONAR saves you time and allows you to get to the music faster.

Blend Loops—Tight and In Key

SONAR 5 offers the most comprehensive loop construction and composition toolset of any DAW. Build beds of backing tracks and textures by clicking and dragging ACID™-format audio loops and MIDI Groove Clips that match the tempo and key of your projects. SONAR includes per-slice envelope control of gain, pitch, and pan, to take any audio loop and make it perfectly blend—in time, in key, and sonically with your projects.

COMPOSE, PERFORM & RECORD WITH RESPONSIVE INSTRUMENTS

Modern Evocative Sounds

Edgy bass, cutting leads, atmospheric pads...these are the sounds you need today to make your tracks stand out and make people take notice. Get these sounds and more with the critically acclaimed and musician approved PYSN II™ subtractive synth and Pentagon I Virtual Analog performance synth.

PSYN II™

Authentic Roland® Instruments

Bring that beat back with GrooveSynth™ featuring 100%-genuine sounds from their genre-defining Roland® groove boxes and synthesizers. And cover all your General MIDI bases with TTS-1 an expressive, high quality Roland GM2 synth.

TTS-1 Multitimbral Synth

Sample This

SONAR 5 Producer Edition comes stocked with 3 versatile samplers and over 700 MB of sample content. RXP™ REX player—tempo-syncing drum machine and groove box. SFZ SoundFont Player—endless sample-arranging capabilities with outstanding sound quality. And Cyclone DXi groove sampler—assign and trigger ACID™ format Groove Clips which match the tempo and pitch of your project.

RXP™ REX Player

Roland® GrooveSynth™

Loop Construction

"WHAT I LOVE ABOUT SONAR IS THAT IT'S A SELF CONTAINED STUDIO. WITH THE RECORDING AND LOOPING TOOLS, INSTRUMENTS AND EFFECTS, EDITING AND MIXING CAPABILITIES, I HAVE EVERYTHING I NEED TO FULLY REALIZE MY IDEAS, EVEN WHEN I'M ON THE ROAD."

DJ Johnny Juice Producer/Turntablist
Public Enemy, Rob Swift, Beastie Boys

The World is Your Studio

Create and record music whenever and wherever you feel inspired. Take your studio with you thanks to Intel's mobile technology.

Intel® Centrino™ Mobile Technology*

Intel Centrino technology is found in lighter, easier-to-carry notebook PCs designed for musicians on the move. It delivers the superior performance demanded by sophisticated digital audio workstations like SONAR, so you can make the dream of a mobile studio a reality.

Intel Centrino is more than a processor. It features fully integrated Wi-Fi capability for internet connectivity and collaboration with other musicians, as well as unparalleled battery life.

Experience the Performance of the Intel® Centrino™ Mobile Platform:

- Up to 533 MHz front side bus and Dual Channel DDR2 533 MHz memory for more responsive sampler performance
- Graphics Media Accelerator 900 and PCI Express X16™ graphics interface offers faster redraws of complex audio waveforms and enables high quality, smooth video playback for scoring your next soundtrack
- Intel® High Definition Audio enhance your audio quality

Rory S. Kaplan Executive Producer/Consultant/A&R/Musician
Sting The Eagles Queen The Police Sheryl Crow London Symphony Diana Krall

"OVER THE PAST 9 YEARS I HAVE SPECIALIZED IN THE PRODUCTION OF 5.1 SURROUND PROJECTS. THE SURROUND FUNCTIONS ON SONAR ARE LOGICAL AND EASY TO CREATE MIXES WITH. I FIND THE SOFTWARE INTUITIVE AND I WAS IMPRESSED WITH ITS HIGH SONIC QUALITY AS WELL. IT'S NICE TO DISCOVER A PRODUCT LIKE SONAR WHERE IT'S POSSIBLE TO GET HIGH END RESULTS AT SUCH A REASONABLE PRICE."

producer's edge

Create perfect vocals, get the ultimate reverb, mix in surround and stereo at the same time, keep even your largest projects manageable...SONAR 5 Producer Edition offers precise editing, pristine sound, and flexible mixing—all in a tightly integrated workspace.

Fast, Effective Editing

Nailing it on the first pass doesn't always happen, and artists expect to record numerous overdubs. SONAR 5 offer timesaving comping and editing features for making fast, precise edits and assembling master takes, including loop recording to Track Layers; multi-clip Nudge, Slip Edits, and Fades; Clip Muting, Partial Clip Muting, and Auto-crop/Crossfade. In addition, editing audio and MIDI is now integrated in one view making it easier to edit your tracks in-line with your project.

Perfect Vocal Tracks—Roland® V-Vocal™

Accomplish edits you never imagined possible with Roland® V-Vocal™ VariPhrase technology—a producer's dream for working with singers. Far beyond automatic pitch correction, with V-Vocal you can control the tempo, pitch, dynamics, and phrasing of vocal tracks, and add harmonies and vibrato in real time with virtually no degradation of sound quality.

A Wide Range of Effects

Choosing quality effects can polish a dull mix into a chart-topping hit. SONAR comes with some of the finest reverbs and effects on the market today including the Sonitus:fx Suite, Perfect Space 64-bit Convolution Reverb, legendary Lexicon® Pantheon™ Reverbs (stereo and surround), and the Sonitus Surround Compressor—perfect for 5.1 mixing.

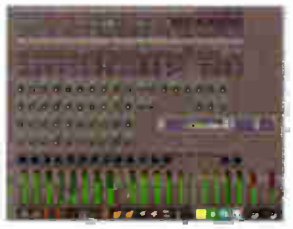
The Best Mixing Environment – Hands Down

Simply stated, mixes created in SONAR 5 sound better, whether you're working in stereo or surround (over 30 configurations supported). SONAR 5's 64-bit double precision floating point engine utilizes a true 64-bit end-to-end signal path, delivering dramatic increases in dynamic range and audio fidelity—breaking through plug-in accuracy and summing bus limitations found in 32-bit floating point applications. This engine is the heart of a robust mixing environment that also features flexible on-the-fly bussing, a dynamic Console view, new free hand and tempo-sync'd envelope automation shapes, quality effects, configurable pan and meters, bus and synth waveform preview, and ultra-high quality POW-r™ Dithering.

Roland® V-Vocal™

Clip-based Effects

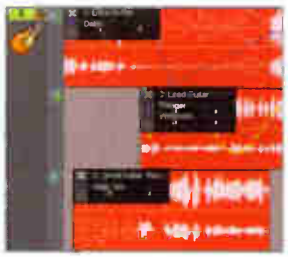
Ever want to use an effect on just one section of a track? In edition to unlimited track and bus-based effects, SONAR 5 now offers full-featured FX bins and automation with automatic delay compensation on any clip—copy effects from clip to clip, clip to track, or track to track.



Console View

The Tools You Need To Manage Large-Scale Projects

These days, professional projects can easily reach 60, 80, or even more than 100 tracks. SONAR 5's Track Folders and Navigator View allow you to efficiently organize, manage, and navigate your large scale projects, while providing the flexibility for fast and in-depth editing. Large projects also tax valuable CPU resources. Breakthrough CPU-imposed limits with SONAR 5's superior Freeze for tracks, effects, and synths.



Clip-based Effects and Editing

"IN THIS BUSINESS, WE DON'T CARE WHAT A PROGRAM SAYS IT DOES, WE CARE HOW IT SOUNDS...AND LET ME TELL YOU SONAR SOUNDS GREAT. IT'S THE ONLY PROGRAM WHERE I HAVE BEEN SATISFIED MIXING INSIDE THE BOX. AND WITH THE EXTENDED DYNAMIC RANGE OFFERED BY SONAR'S 64-BIT DOUBLE PRECISION ENGINE, MY MIXES ARE GOING TO SOUND EVEN BETTER."

Terry Howard Producer/Engineer
2005 Grammy Winner for Best Engineered Album, Album of the Year, Record of the Year for Ray Charles Genius Loves Company

The Power of Native Processing Comes of Age

With Intel's latest technologies, cumbersome and expensive add-on DSP cards are now a thing of the past. Patch multiple effects, perform with multiple virtual instruments, and record on multiple tracks simultaneously, native on Intel processors.

Floating Point Performance

Audio mixing and DSP in SONAR is done using both 32-bit and 64-bit floating point arithmetic and is highly optimized for maximum performance and sound quality. With their outstanding floating point performance, Intel processors allow SONAR users to mix hundreds or even thousands of audio streams in real-time with no loss of sonic fidelity.

SSE, SSE 2 & SSE3

SONAR is optimized for Intel's Streaming SIMD (Single Instruction Multiple Data) Extensions allowing SONAR to take full advantage of your processor's performance. This allows SONAR to perform multiple floating point computations all at once. 128 bits at a time.

Benjamin Wright Producer, Engineer, Arranger, Songwriter
Brandy, Destiny's Child Michael Jackson, Jamiroquai, Outkast, Justin Timberlake

"FROM EASY INTEGRATION WITH EXTERNAL HARDWARE, TO INTERNAL SUPPORT FOR THE BEST EFFECTS AND SOFT SYNTHS, SONAR 5 HAS EVERYTHING I NEED AND MORE TO KEEP ME HAPPIER THAN EVER."

bringing it all together

SONAR 5 seamlessly combines all of the professional music production technology you need, along with flexible project delivery options in one integrated workstation, making it the heart of your studio.

Audio Hardware

Use any Windows compatible audio device via ASIO or WDM—from your stock soundcard to high-end Pro Tools | HD hardware.

DirectX, VST, MFX, and ReWire Effects and Synths

With open support for DirectX, VST, and ReWire effects and instruments, you can integrate plug-ins from Native Instruments, Waves and other leading plug-in manufacturers; and ReWire clients like Project5, Live, or Reason. You can also take advantage of processing cards like the UAD-1 or TC-Powercore.

Global Control Surface Support

SONAR's support for control surface hardware gives you hands-on control of your mix, audio effects, and soft synths. Features dedicated support for control surfaces from CM Labs, EDIROL, Mackie, Roland, TASCAM, and many others.

Video Scoring

SONAR 5 Producer Edition features both a video thumbnail track and window for scoring video projects, you can also output video to 1394 FireWire devices for high quality viewing with lower CPU and disk usage. Import/export QuickTime, MPEG, Windows Media Video (with 5.1 audio), and AVI (with 5.1 audio) with control over quality settings and codecs. Fit audio to picture using MPEX 3 times scaling. For work with external video and hardware, SONAR offers frame-accurate SMPTE sync with auto-detection of timecode, and multi-port transmission of MTC and MIDI Sync.

Import and Export Audio at Any Bit Depth or Sampling Rate

SONAR 5 combines POW-r™ ultra-transparent dithering (digital-audio bit reduction), support for any sampling rate (44.1, 88.2, 96, 192, 384 kHz, etc.), and ultra-high-quality Windowed Sinc sample rate conversion, to give you the power to import and export audio at any bit depth and sample rate, while preserving pristine levels of audio fidelity.

Industry-Standard Delivery Options

Deliver your projects in industry-standard formats for final mastering, Internet distribution and collaboration with Pro Tools, Nuendo, Digital Performer, or Logic studios. Export buses and tracks into a composite mix down, or as individual files. SONAR includes fast and configurable presets for frequently-used export settings, and imports and exports industry standard formats including ACID™-format WAV, Broadcast WAV, OMFI, and many more. With open support for external command-line encoders (Ogg Vorbis, etc.), SONAR 5 allows for more export options.

Perfect Space™

Surround Compressor

"I'VE WORKED IN OTHER SYSTEMS AND NOW I DO IT ALL IN SONAR. IT HAS EVERYTHING I NEED TO MAX OUT MY CREATIVE ABILITIES AND COLLABORATE WITH OTHER ARTISTS. I NEVER LEAVE SONAR...AND IT ALWAYS KEEPS ME INSPIRED."

Sharkey Producer, So'o Artist
Cannibal Ox, Grand Puba, The Pharcyde

Distributed Processing

Why use multiple machines when you can do it all in one? SONAR is enabled to take advantage of distributed processing in PCs with multiple CPU processors and Intel's Hyper-Threading Technology†. The full benefits of Hyper-Threading are realized when running SONAR in conjunction with ReWire devices like Project5 and Reason, multiple virtual instruments, and digital video.

Next Generation Integrated Audio Devices—Intel High Definition Audio

Intel has worked with the industry to develop a new specification for integrated motherboard audio that is capable of delivering the features and high-end performance of an add-in audio card. Intel® High Definition Audio (Intel® HD Audio) is capable of playing back more channels at higher quality than previous integrated audio formats.

Increased Audio Quality:

- 192 kHz, 32-bit 8-channel audio support
- 95dB Signal to Noise ratio
- -65dB Total Harmonic Distortion
- Support for high quality audio formats
- Support for 7.1 surround sound
- Support for digital input and output

Enhanced Usage Models:

- Send different audio streams to different devices in your studio
- Automatic Device Detection: detects the audio jack in use and alerts you for proper configuration

Timothy Michael Wynn Film, TV, Game Composer
James Dean Forever Young, The Punisher, Partners, Alien Ant Farm, The Chair

"SONAR 5 AND ITS NATIVE 64-BIT IMPLEMENTATION ARE SETTING THE NEW STANDARD FOR AUDIO PRODUCTION. COUPLED WITH IT'S NEW, ROCK SOLID DUAL PRECISION AUDIO ENGINE, AND FEATURES LIKE FIREWIRE VIDEO EXPORT, INLINE MIDI EDITING, AND V-VOCAL, VERSION 5 IS UNBEATABLE."

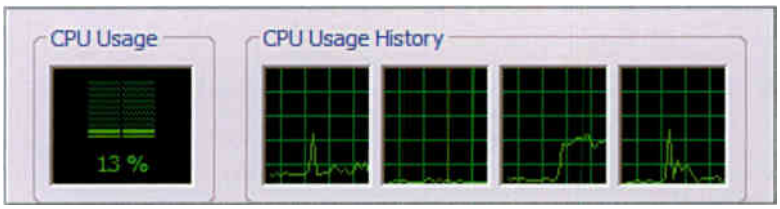
making the leap to 64-bit

Native Power

SONAR 5 ships with both a 32-bit version and the first native 64-bit digital audio workstation for Windows XP x64 Edition*. On Intel® EM64T (Extended Memory 64 Technology)† and AMD64* based systems running Windows XP x64 Edition, SONAR 5 introduces significant processing performance gains allowing for more simultaneous tracks, effects, and instruments, and faster rendering and export.

New Worlds for Sample-based Composition

On 64-bit enabled machines running Windows x64 Edition, SONAR 5 introduces ground-breaking advances in RAM allocation with access up to 128 GB of physical RAM. By comparison, on 32-bit machines RAM allocation was limited to 3 GB. This advance provides an immediate benefit when working with samplers, allowing you to use larger more realistic sample banks for your productions. You will also see advantages on loop-intensive projects. By loading samples and audio clips into RAM, you will also have a more responsive experience by eliminating the latency introduced by disk streaming.



Distributed Processing Meter Monitoring Two Dual Core CPUs

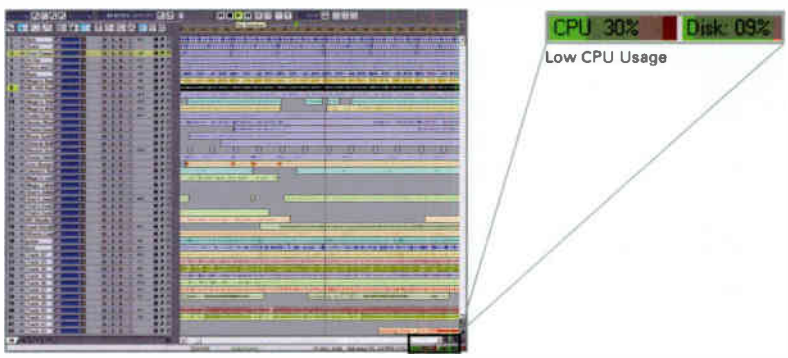
BitBridge™

A primary barrier to making the leap to the 64-bit environment has been the lack of plug-ins available. SONAR 5's BitBridge™ sweeps aside any resistance by enabling the use of 32-bit VST effects and instruments in SONAR's 64-bit environment. BitBridge™ technology extends the viability and use of your favorite VST plug-ins; ensures future compatibility of freeware, even for the most obscure, independently developed shareware plug-ins.

The Bottom Line

SONAR 5 x64 combined with an Intel® EM64T platform delivers an empowering experience offering a deeper sonic palette and more creative potential.

- The higher RAM limits translate into use of larger, more-realistic sampler banks.
- The lower latency achieved by loading data and samples into RAM translates into a more responsive playing and mixing experience.
- The processing performance gain translates into more simultaneous effects and virtual instruments.
- Because you are not streaming as much data from disk this will translate into more simultaneous tracks.



SONAR 5 x64 Edition with 48 Tracks Running

"SONAR IS SIMPLY THE MOST FEATURE RICH ENVIRONMENT FOR SCORING. NOW WITH THE 64-BIT ENHANCEMENTS IN VERSION 5, I AM FINALLY ABLE TO WALK AWAY FROM MY EXTERNAL SAMPLERS AND DO IT ALL IN ONE COMPUTER. IF YOU'RE SERIOUS ABOUT YOUR MUSIC, THERE'S ONLY ONE LOGICAL CHOICE AND SONAR IS IT."

Shawn Clement Composer for Film, TV, Video Games, recipient of ASCAP Award for Most Played Underscore *Batman Vengence, Buffy The Vampire Slayer, The Man Show, Sims 2, World's Wildest Police Videos*

REALIZE THE BENEFITS OF 64-BIT COMPUTING TODAY

Intel® EM64T

With the release of SONAR 5, the first truly native 64-bit host DAW application, Cakewalk is continuing its leadership role in ushering in the future of audio recording, editing, and mixing on the PC.

As the only truly native 64-bit host DAW application, SONAR 5 is the perfect choice for those cutting-edge producers, engineers, and musicians who want to start realizing the benefits of 64-bit computing today.

The 64-bit Dual Core and Dual Processor Intel®-based Workstation Platforms enable outstanding performance for digital audio professionals:

- Support for 64-bit computing allows access to 8GB or more of RAM. Process more of your projects in memory with less data caching to and from your hard drive, enabling faster performance. Audio and video processes can perform closer to real- time, critical for the complex audio/video filter algorithms and large data sets demanded by today's professional applications
- Intel® Hyper-Threading™ and dual core processors offer up to 4 threads per socket, enabling industry-leading multi-threaded applications such as SONAR to seamlessly handle more content creation simultaneously as well as multitasking
- High-performance 800/1066 MHz front side bus, fast DDR2 400/533/667 MHz memory and enhanced memory pipelining enable more responsive sampler performance
- PCI Express* x16 graphics offers faster redraws of complex audio waveforms and enables high quality, smooth video playback for scoring your next soundtrack

For more information on Intel products see www.intel.com. Ask your platform vendor about their Intel technology-based designs for digital audio professionals.

Comparing SONAR 5 Studio Edition to SONAR 5 Producer Edition

Designed for project studios and aspiring professionals, SONAR 5 Studio Edition is built upon the same core engine and feature set of SONAR 5 Producer Edition offering a complete solution for recording, arranging, editing, and mixing your audio productions—all in a tightly integrated workspace. Below is a matrix highlighting some of the differences.

Key Features	Studio Edition	Producer Edition
Unlimited tracks of Audio and MIDI	•	•
ACID™ loop and MIDI Groove Clip support	•	•
Native DirectX, DXi, VST, VSTi, MFX and ReWire support	•	•
Double precision floating point engine	•	•
Support for 32 and 64-bit platforms	•	•
Track Folders	•	•
Freeze (tracks, FXs and synths)	•	•
Clip-based effects and editing	•	•
Integrated inline MIDI and audio editing	•	•
Roland® GrooveSynth™	•	•
TTS-1™ GM2 synth	•	•
Cyclone™ groove sampler	•	•
SFZ SoundFont sampler	•	•
Sonitus:fx Suite	•	•
Lexicon® Pantheon™ Reverb	LE	Surround & Stereo
Sonitus Surround Compressor	–	•
RXP™ REX Player groove box	–	•
PSYN™ II subtractive synth	–	•
Roland® V-Vocal™ VariPhrase technology	–	•
Perfect Space™ Convolution Reverb	–	•
POW-r dithering	–	•
MPEX 3 time scaling	–	•
Per-channel EQ and assignable FX controls	–	•
Multi-format surround mixing	–	•
SurroundBridge™	–	•
Video thumbnail track	–	•

For more information on Intel products see www.intel.com. Ask your platform vendor about their Intel technology-based designs for digital audio professionals.

†Intel® EM64T requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel EM64T. Processor will not operate (including 32-bit operation) without an Intel EM64T-enabled BIOS. Performance will vary depending on your hardware and software configurations. See www.intel.com/info/em64t for more information including details on which processors support Intel EM64T or consult with your system vendor for more information.

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Storing Audio for Today and the Future

By George Petersen

FireWire," Smith continues. "It's is a real issue. You can plug and unplug a 'hot' FireWire cable and have no problems 100 times, but on the next time, you could possibly have a problem from shorting the bus power by inserting the plug at a slight angle. I actually smoked a circuit board on a drive once by doing that. It's rare, but good practice would be to plug in all your FireWire devices before powering up."

SERIOUS ABOUT BACKUPS

Engineer/producer Mark Needham—whose credits range from Chris Isaak to The Killers, and Flipper to Fleetwood Mac—recently completed The Ballroom, his private facility built into a old ballroom in Hollywood. With a steady stream of label projects coming in, Needham needed a flexible network to serve his storage and backup needs.

"I have two rooms at my studio: One is a mix room, the other is an edit room where I do all my pre-editing, and they're both connected to one central server," he says. "Having access to both the edit and mix rooms working on the same project has saved me a lot of time. I got the system from RSPE Audio Solutions and they contracted it out to Michael Dorian of MD Productions, who set up a fiber-optic-to-SATA RAID storage system with a 3.2-Terabyte server." One computer handles backups via a tape backup system with an eight-tape Exabyte tape library that automatically backs up everything continually from all four computers.

"We can be working on the same song from the same drive and everything's backed up. If we were just storing to a single drive and it crashed, we'd lose a project," explains Needham. "But the RAID stores across multiple drives, so if that loses a drive, we can just replace that drive with a new one and it rebuilds all the files automatically. We're backed up on RAID and tape, as well. In terms of short-term recovery, I can pull up projects I worked on two years ago. With The Killers, I've had to bring their project back up a half-dozen times in the past year to be reimported onto the RAID system. Usually, I'm sending FireWire drives or DVDs back to the labels and I keep the Exabyte tapes here. It's the best solution I've found so far."

THE SIMPLE APPROACH

After years of engineering hits for Barbra Streisand, Celine Dion, Kenny G. and Michael Bolton, and winning Grammys for his work with Natalie Cole and Madonna, Dave Reitzas knows how to keep the customer satisfied, and making sure data is secure is a top priority. His approach is simple, but effective.

"One of the easiest ways of protecting your work is to copy it over to other drives as you're doing the project," Reitzas explains. "So I have a copy and the producer has a copy. Budgets are shrinking and file sizes keep getting larger, and at the end of the project when the last mix is done and the deadline's over, there isn't always the time or budget to spend doing full backups and archiving. It should be the responsibility of the artist's account. Most of my concern for backups is not what's going to happen in 20 years, but what will happen next week if a drive goes down. If I'm not backing up and my drive goes down in the middle of a project, I'm screwed. I'm not getting paid in 20 years. My responsibility is to make sure the project gets finished and delivered on time."

So far, Reitzas sticks to disk drives for backups, leaving archival chores to the label. "I haven't seen a tape drive in about four years," he says. "My experience is that record companies want hard drives at the end of the project and then it's the guy in their vault who takes that responsibility. But what's also important is leaving some kind of road map. With a hard disk system, you can have tracks all over the place and configured in such a way that only the original engineer has a clue as to how it goes together. Later, somebody forensically has to figure out what's going on."

Yet the old analog track sheet doesn't go far enough. "I just did a transfer of some original analog sessions that were copied to digital 48-track years ago and now I'm copying them to Pro Tools," Reitzas continues. "I have the original track sheets, but they don't tell you there are three different bass parts and doubled guitars. When I did the original mixes, they sounded incredible, but I don't remember which bass part I used."

> Most of my concern for backups is not what's going to happen in 20 years, but what will happen next week if a drive goes down. If I'm not backing up and my drive goes down in the middle of a project, I'm screwed.
>
> —*Dave Reitzas*

But with or without track sheets or road maps, the backup process was a good thing. "I'm glad I've done those digital 48-track transfers now," Reitzas says, "because maybe in 10 years, there won't be any machines around."

THE LABEL VIEWPOINT

If data storage issues are tough on engineers and producers, then the problem is 1,000 times more complex for a large record label, especially with smaller budgets and a huge number of formats. "I could talk for hours about the dilemmas this brings up," says Randy Aronson, senior director of vault operations at Universal Music Group.

Archiving is more difficult now in some

ways, yet easier in other respects, adds Aronson, an archivist with 20 years of experience. "Where we'd sometimes have 100 2-inch reels of analog on a project, now there's one hard drive," he says. "What's more difficult now is finding out what's on that drive. Once they're here, we send them out to the studio to first see if they work—they sometimes don't—or if the data is written for a program we can't recognize. Then we go into the drive and search. Finally, a digital photo of the label is taken and handed to our processing team, and from that snapshot, metadata is inputted into our inventory system.

"Most projects come in on hard drives with Pro Tools files, with some analog. In terms of data storage tapes, we prefer LTO. It seems to have a little more flexibility over AIT, but that's a pretty thin line. But sending a digital copy of a master is much easier than moving 20 reels of 2-inch analog, which was very risky with large magnetic fields nearly everywhere and oxide falling off as tapes age. The idea that we can digitally store these is very appealing."

Protecting the label's investment—especially in older catalog material—is a priority. "We've also backed up our 32-track [ProDigi] material, all of our X-80 [Mitsubishi 2-track] and all of our 48-track [DASH] tapes, and now we're going through all of our 16- and 24-track analog material from the 1970s, which have shown to be more susceptible to oxide flaking," Aronson says.

"We back everything up to two hard drives: one for here and a second stored in our main underground vault in Boyers, Pennsylvania, at the facility Iron Mountain owns, along with an LTO tape stored in a second vault there. We try to stay up to date without having to knee-jerk to every new storage format that comes out. If you make smart choices—and I think we have—you can keep your material safe."

Iron Mountain maintains secure storage facilities around the U.S., with the Boyes facility in a former limestone mine/later-turned bomb shelter. This vast underground city—with some 2,000 people working in separate facilities in its miles of deep caves—resembles a James Bond fortress, with armed guards minding the mint.

Ironically, one of the best ways to protect masters is to make sure they don't get lost. "All of this work is being done at Xepa Studios, a transfer facility located within Iron Mountain itself and just 200 feet from our vaults," Aronson says. "It's run by a very talented group: Ken Caillait, Edwin Outwater and Claus Trelby. It's great: The material never leaves the mine—no more FedEx tracking! Using Xepa, I can have a digital master sent anywhere faster than if the material was in our New York or L.A. vaults, directly via WamNet within hours.

"We have a new thing called HAL [Huge Audio Library], which is how we're storing music in digital archives for production material," Aronson continues. "It doesn't hold every outtake, but offers a source where people can get our music digitally. The days of everyone going to the original source tape will wane over time and people will acccept going to the digital sources, as the public now does with downloads. I shudder at the thought of us pulling original Chuck Berry or The Who masters to send out for someone doing a budget-line CD compilation to be sold in gas stations. It's a different situation with a boxed set and high-level projects where the master must be used, but for many applications, HAL provides good quality while protecting a master work of art.

"People have gotten used to working with digital file material that way because it's a lot less expensive. It's all about costs today, especially in the music business." ■

George Petersen is Mix's editorial director.

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2005 TEC AWARDS WINNERS

The Broadway Ballroom of the New York Marriott Marquis was packed for the 21st Annual TEC Awards on October 8, where attendees were treated with tributes to Hall of Fame inductee Arif Mardin, Les Paul Award winner David Byrne and the best audio products and projects of the year.

The show opened with a high-powered performance by the 2Cold Chili Bone TEC Band, featuring guitarist Carlos Alomar on Talking Heads' "Once in a Lifetime" and a hilarious skit by master of ceremonies Will Lee. Other highlights included an emotional rendition of "Through the Fire" by R&B legend Chaka Khan and a moving speech by Atlantic Records founder Ahmet Ertegun on behalf of colleague and friend Arif Mardin. Proceeds from the ceremony are donated to the hearing conservation programs of the House Ear Institute and H.E.A.R., and to scholarship funds for students of the audio arts and sciences.

Master of ceremonies Will Lee hails the band.

Presenters engineer Fred Maher (l) and AMD's Charlie Boswell

Carlos Alomar burns down the house with his solo on Talking Heads' "Once in a Lifetime."

The legends unite at the VIP reception, from left: Gibson's Henry Juskiewicz, Les Paul, Al Schmitt, Phil Ramone and Mix Foundation president Hillel Resner

David Scheirman accepts the TEC Award for Sound Reinforcement Loudspeaker Technology on behalf of JBL for the VerTec VT4888DP.

Shure's Scott Lightner accepts the TEC Award for Wireless Technology for the SLX Series.

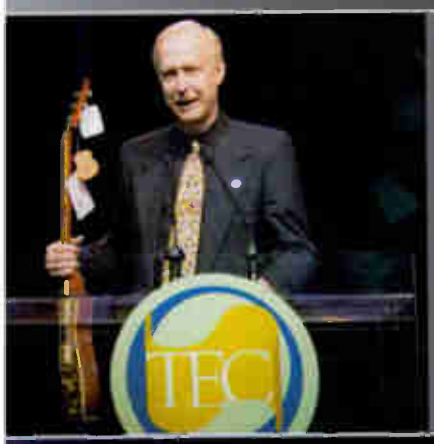
ALL PHOTOS ALAN PERLMAN FOTO ASSOCIATES

Chaka Khan performs her hit "Through the Fire" in honor of her mentor, producer Arif Mardin.

Laurie Anaerson (l), who accepted the Les Paul guitar on behalf of David Byrne, and Les Paul

Recording Academy president Neil Portnow (l) presented with Jimmy Jam

Digidesign general manager Dave LeBolt accepts the TEC Award for Pro Tools 6.7 in the Workstation/Recording Technology category.



Gibson's Henry Juskiewicz prepares to present a custom Les Paul guitar to Laurie Anderson, who accepted on behalf of David Byrne.

(L-R): Winners for Remote Production/Recording or Broadcast for their work on Crossroads Guitar Festival: remote engineers Ed Cherney, Kooster McAllister and Greg Ondo; Remote Recording's Karen Brinton; remote engineer Elliot Scheiner; presenters David Morgan and Al Schmitt; and Remote Recording's David Hewitt

Ahmet Ertegun (right) and Hall of Fame inductee Arif Mardin

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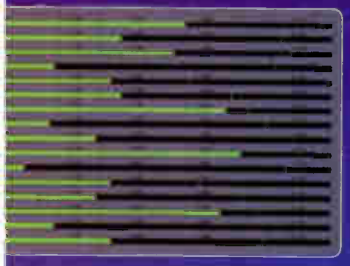

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The Sound of Silents

Old Music, New Music Resurrect Classic Films

BY MATT HURWITZ

Epic films can put both composers and scoring mixers to the test, requiring considerable amounts of cues, stings and lush melodies to accompany visually stimulating imagery. But try providing *four hours* of *nonstop* music for a film. That tall order is what silent-film composer Robert Israel faced for a 1999 restoration of Erich von Stroheim's 1924 epic, *Greed*. "Three hours of that was original composition and the other hour was arrangements of existing music," he corrects. "So it was very substantial."

Substantial is an understatement. Silent-film composers must come up with inordinate amounts of content, often working with heavily reduced budgets from what contemporary film composers have available. "That's the biggest challenge," says producer/engineer Joe Carroll, who worked with composer Donald Sosin on a recent score for a Criterion Collection DVD reissue of Cecil B. DeMille's 1927 version of *The King of Kings*. "The first thing I learned about scoring a silent film is that if you score a 160-minute silent film, it contains 160 minutes of score. For a sound picture, you have musical cues here and there with maybe 30 or 40 minutes of music. But here, you've got cues going all the time."

In the silent era, according to Israel, scores were often compiled from existing music that was easily accessible to local theater organists or house music directors. "For road show attractions or bigger films," he says, "the studio might have actually hired a composer to write a complete score," which was provided to theaters in large cities, such as New York's Roxy, for an orchestral performance. "The smaller cities, though, might, at best, have a piano or, if they were lucky, a Wurlitzer theater organ," an instrument Israel is himself accomplished at playing. (The composer can often be seen in Los Angeles venues playing at various silent-film screenings.)

But just because a film may have an existing score available doesn't mean that when the time comes for a DVD reissue or a new live performance, such music is still applicable or requested. For Warner Home Video's new reissue of *The Wizard of Oz*, Israel was commissioned to write a completely new score to accompany the 1925 silent version of the film, which appears as bonus material. "Occasionally, I get a project where a score is intact and they'd like to use it. But the simple fact is that sometimes the original scores just aren't very good."

Israel, who records for such distributors as Flicker Alley (www.flickeralley.com) and Turner Classic Movies, among others, works to stay on budget by recording most often in the Czech Republic, with members of the accomplished Moravian Philharmonic Orchestra. "When I started working with them in 1999, it was because of the expense," he says. "But at this point, I've developed such a good relationship with them that it just works very well from all standpoints."

One advantage of using the orchestra, which records at the Reduta Auditorium in Moravia, is that it comes with engineer Vladislav Kvapil. "He used to be the concertmaster, he was the first chair violin," says Israel. "We're not talking about someone who's without capable musical ability. He's a virtuoso."

Kvapil and Israel record a 26-member selection of players, about the size of the typical theater orchestra of the 1920s. A live stereo mix is tracked onto Pro Tools LE 5.0.1 and on DAT, as opposed to multitracking and mixing later. "We prefer the live mix because it preserves the live experience," says Kvapil, noting that he records dry, making use only of the hall's natural reverberation characteristics. Israel applies solely his experience for balancing the orchestra. "When I'm conducting, I can actually conduct it as a real orchestra. If I want the flutes to play a little bit louder, I can tell them to voice things that way. When we're recording, you're really getting a very organic performance as you would in the concert hall."

The need for a live stereo mix is often more an issue of budget than taste, though both can come into play.

Robert Israel conducting to picture in a screening room

"Sometimes, it's a matter of getting it together quickly because you just don't have time," says engineer Brian Friedman, who has recorded Israel when he works in Los Angeles. "You don't sit there and obsess over one little microphone. When you're dealing with an orchestra, you're dealing with the entire room anyway. So, sometimes, with our schedules, if somebody blares out or makes a mistake, there's not a whole lot you can do except have another take."

Friedman will mike, say, a 30-piece silent orchestra using a cache of old favorites. "There's usually 13 strings, 6-2-3-2 [six violins, two violas, three celli, two bass], which I'll mike with Neumann U87s [violins], AKG 414s [violas] and AKG 452Ebs for the celli and bass. I'll also use 414s on the woodwinds, which are usually a clarinet, flute, oboe and bassoon. Brass—usually a trumpet or two, French horn and a trombone—usually get an [Electro-Voice] RE20, which gives them weight and helps limit the top end when the trumpets are in the top range."

Another instrument commonly heard on silent-movie scores is, of course, the multipipe Wurlitzer theater organ. Friedman has recorded several, including the one at the Old Towne Theater in El Segundo, Calif., which has all of its pipes located in one plane at the back of the venue's small stage. "I'll usually mike them with three mics: a pair of U87s left and right [set to omni pattern to pick up the room] and a U47 in the center, placed 10 to 15 feet away and about seven feet high. You want to avoid picking up too much of the bellows and the mechanics of the organ, though you want some of that in there to retain the realism of the instrument."

At some larger venues, such as downtown L.A.'s restored historic Orpheum Theatre, which features a 6,000-pipe Wurlitzer, he splits the organ's instruments into two cavities: left and right of the stage, high above the audience. "For a venue like that, I would still use a pair of U87s suspended from the ceiling, if possible, eight to 10 feet away, but supplemented with 414s to pick up the chimes, flutes and other high-end sounds, and RE20s to pick up the low reed instruments." For the studio, Israel finds the Allen Digital Computer Organs a close enough fit in lieu of the real thing.

MIDI instruments can actually become the orchestra of choice, especially when budgets are low. For Sosin's *The King of Kings* score, the composer penned 155 minutes of "wall-to-wall music," as he describes it, nearly all of it written and played on synthesizers. "I added an eight-voice chorus, a soprano solo and live violin, but the orchestra was synthesized," he says. Sosin wrote the score at his home studio using Digital Performer and a Roland RD700 keyboard. "I used the RD700 for many of the sounds, even though I knew I was going to end up with samples later on down the road," he says. "I started with a couple of very nice string patches in the Roland library, some of which actually made it into the final mix, and then added horns, solo woodwinds and percussion, all of which kept it very symphonic."

Joe Carroll, of Manhattan Producers Alliance

Once the score composition was completed, Sosin brought his Digital Performer file to Joe Carroll at the Manhattan Producers Alliance (www.manhatpro.com). "We're sort of a hub for a whole bunch of producers," Carroll says, "so we end up spending a lot of time working out the technical procedures for moving from one guy's studio to another. And it's far from simple."

Indeed, transferring Sosin's Digital Performer file into Apple Logic Pro was a cumbersome task. Sosin explains, "The client had asked for a single continuous track to avoid having to edit 100 separate pieces of music with different start times. It's something I've done before, and it can be quite convenient. But we ran into a difficulty when importing the file into Logic. He had one huge MIDI file, 155 minutes long."

At first, the team attempted to import the file as a single standard MIDI file, but hit a wall. "The DP file was 5,000 measures long, and we discovered that Logic has a measure count limit of 2,100 bars, so the whole thing just choked," Carroll says. Once the issue was identified, he broke the original file into eight individual reels of music, which were synchronized into five separate Logic sequences.

Once the file could be handled, Carroll says, "We then spent about a day or more creating a palette that would enhance the sounds that he had in his original score." GigaStudio and the EXS-24 virtual sampler within Logic were employed. "EXS is very efficient in terms of using horsepower in the computer," Carroll explains. "It doesn't use up a lot of resources within the Macintosh, so we can use a whole lot more of them."

Stems were then recorded within Logic Audio and bounced down to Sound Designer 2 files. "We provide 'a,' 'b' and 'c' music stems," Carroll explains. "We had to leave a head and tail on some of the cues to allow some overlap for the mixer, because sometimes a final dissolve might not be locked yet for films that are still undergoing restoration."

In addition to creating a score that helps move the storytelling along, Sosin, like many silent-film composers, is often called on to add sound effects to match action on the screen. For Charley Chase's film, *Mum's the Word* (1926), Sosin says, "There's a scene where he picks up an alto sax. So I synthesized a sax line because I think it's more fun to watch. I tried very carefully to match his fingering. God knows what he was playing, but I tried to get the timing right." Similarly, for Kino's release of *Siren of the Tropics*, "[Josephine Baker's] in a Parisian cabaret, and you can see what the makeup of the orchestra is," Sosin says. "So I tried to create a jazz dance for her that used the sound of the instruments that you could see and follow the beats of the conductor to make it as real as possible, as though you were simply watching a sound film." ■

Matt Hurwitz is a freelance writer based in Los Angeles.

Bringing in New Blood

For the past six years, Turner Classic Movies, along with co-sponsors Todd-AO, *Film Music* magazine and Guitar Center, have offered the opportunity for up-and-coming film composers to compete in TCM's Young Film Composers Competition (YFCC). Winners are assigned a silent film to score, with the winning entrant afforded the opportunity to have his/her score recorded at Todd-AO in Studio City, Calif. Previous winners have scored films by Lon Chaney and others, while this year's winner, Marcus Sjöwall, mentored by Hans Zimmer, will provide a score for *Souls for Sale*, a 1923 Goldwyn Pictures film that gives a satirical behind-the-scenes look at Hollywood.

Mixer Dan Blessinger assists the YFCC winner.

"It's an unbelievable challenge for these guys," says scoring mixer Dan Blessinger, who has recorded all of the YFCC scores at Todd-AO, the most recent with recordist Tom Hardisty. "They win the competition and it's very exciting, and they get thrust into probably the challenge of their career." The films typically have between 40 and 50 cues, some as long as three or four minutes in length.

The scores are usually recorded in about three days, with an additional week for mixing. Husband and wife team Ross and Audrey deRoché, of deRoché Music Services, help usher the composers through the process. "They act as contractor and really help the composer produce the sessions, and they help keep the sessions on time and on track," says Blessinger. "There's so much music to record, they really have to make sure they get it all done within the time that we have."

Blessinger records the cues in Pro Tools in a linear fashion. "We prelay all the click tracks ahead of time and put them in Pro Tools," he says. "Then we'll record each cue in its appropriate place, with reference to the timecode, even doing multiple takes within the same Pro Tools session. The whole movie then is actually done within one Pro Tools session."

The first time he recorded a score in this manner, Blessinger says, people gave him a few funny looks. "Normally, you would record one cue at a time. But the advantage of doing it this way is that you can easily go from cue to cue without having to reopen files. And on a session like this, where you have to move really, really fast, you can't spare the two or three minutes per cue to open up another session. If you make any changes to your template, you have to make that change 50 times if you have 50 cues, and we don't have that kind of time. This is much more efficient."

Adding new blood to the silent-film composing family is good for silent movies, says Donald Sosin. "Each generation adds its own take. That's one of the wonderful things about silent-film music—it is going to keep changing."

"I think it's exposing a lot of people to the great films that exist out there," adds Blessinger. "And it really gives some of these classic productions some new legs and a new, fresh presentation because they really are masterpieces."

—Matt Hurwitz

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BY DAVID JOHN FARINELLA

Joe Henry

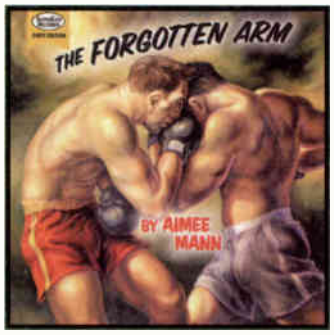
Songwriter/Producer Gets It Right the First Time

Proving that if it isn't broke, don't fix it, producer Joe Henry has just completed a string of seven-day recording sessions for artists as varied as Aimee Mann, Ani DiFranco, Susan Tedeschi and Bettye LaVette. "I'm finding that it's the only way I know how to work," Henry says on a break between the recording and overdub dates during Tedeschi's sessions for *Hope and Desire*, arguably her strongest album to date. "I'm not sure that if I had a bigger budget that I would necessarily work longer. I don't think it's about wishing we could afford more time."

PHOTO: MELANIE NISSEN

Rather, Henry adds, setting that type of time frame for the recording dates changes the musicians' perspectives. "I much prefer to cast the net on the side of the boat where people are thinking about performance. We always set up in a way that you can fix or redo anything," he says. "It's not like this locks you into a problem and that you've got to live with a vocal because we like this take. We can fix anything—it is the modern world and I like it. I am very much a fan of that dynamic thing that happens when people are in a room and trying to discover a song."

While Henry is perhaps best known as an artist in his own right—his ninth and latest release, *Tiny Voices*, came out in 2003—he first stepped into the producer's spotlight in the late '90s with such artists as Shivaree and Teddy Thompson. It was a career he first started contemplating at the suggestion of T-Bone Burnett, who produced Henry's 1990 offering, *Shuffletown*. "When that record was coming out, I moved out here [to Los Angeles] and then I had a terrible falling out with A&M," Henry recalls. "[Burnett] hired me to be like a production associate to be there when he was not.



"I immediately started working on a Bruce Cockburn record [the 1991 *Nothing But a Burning Light*] with him. That was a really significant record for me," Henry continues. "I mean, there was Jim Keltner, there was Booker T [Jones III], Edgar Meyer—you know, a really great group of people to walk into a room. So I got invited into this camp working for T-Bone and he was always pushing me. He was like, 'I need help, you need a trade.'"

Having the dual talents of songwriter and producer has helped Henry while he goes into work with Mann, DiFranco and Tedeschi. "I'm always thinking in terms of songs," he says. "The song is everything to me, so what it takes for a song to feel like a living thing once you take your hands off of it is absolutely the endgame for me. I think the fact that I come at this as a songwriter, that's my orientation, no matter what the genre of music. Whether I'm making a bluesy record with Susan or a more crafted songwriter record with Aimee, or Ani's thing, which is so distinct to her, the common thread through all of that is the songs, no matter where they come from."

In fact, dating back to the acclaimed 2002 Solomon Burke release, *Don't Give Up on Me*, Henry has taken an active hand in selecting songs for artists. At Henry's encouraging, Tedeschi tracked "Loving You Is Sweeter Than Ever," which the Four Tops recorded; a Bob Dylan outtake, "Lord Protect My Child"; a Richie Havens song, "Follow"; and a Percy Mayfield tune called "The Danger Zone," which came to their notice through a Ray Charles recording. "It is, at times, very bluesy, but there's also a lot of very straight soul music, and I mean that in a very Motown way. It's very raw and very live," he explains of Tedeschi's release. "It's a much more viscerally raw record than I thought I would get away with making. It's what I hoped to do, but based on her other recordings, I didn't know if she or her label would be in favor of it going in that direction. She's an amazing singer and is amazingly consistent. We talk about putting songs up, and with each song that comes on, you're trying to find a way for this particular band to inhabit them and embody them in a unique way, and for her to find a way to sing them that's authentic to her."

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The collection of songs that the legendary soul singer LaVette tackled for her latest album, *I've Got My Own Hell to Raise*, was all from female songwriters. "I was also involved in the A&R process of that record and it was really interesting to put together a collection of songs by women from many different sources," Henry says. Among the songs on LaVette's stunning disc are tunes originally cut by Sinéad O'Connor ("I Do Not Want What I Haven't Got"), Dolly Parton ("Little Sparrow"), Aimee Mann ("How Am I Different") and Joan Armatrading ("Down to Zero"), among others.

Henry's experience with both Mann and DiFranco was different, in that he would bring unique talents to each session. "In Ani's case, I've heard people ask her the question, 'You've never worked with a producer before. Why him? Why now?' I think we share a lot philosophically about the way records live, the way they can happen, the way they should happen," he explains. Henry produced half of the songs on DiFranco's latest disc, *Knuckle Down*, and all of Mann's latest, *The Forgotten Arm*. "Aimee was looking for an aggressive third ear who was going to help her songs become something they weren't already. I think she felt that her last two records were sonically of a piece and she wanted to step outside of that and do something that came from a different angle."

Mann's *The Forgotten Arm* definitely takes a turn from her more polished releases. "It's got a lot more loose ends; a lot more hair on it," Henry says. "That was a conscious decision. I remember when we were first having a conversation about working together, she said, 'It would be great for me to work with somebody who doesn't have The Beatles as their only frame of reference, as far as record-making.' I said, 'Well, that would be me, because I don't have a clue. They're nice songs, but I've not done the research that it was this mic on this amp pointed east toward the river.' A lot of people seemed to be really well-versed in that bible of recording, but that's not my orientation."

Henry is not interested in engineering a session he's producing and will often turn to engineer S. "Husky" Hoskulds. "Husky is like bringing another musician into the equation because he's not just trying to document with high fidelity so that later we can figure out what to do with these tracks," Henry says. "He, like any musician, is making choices. Many times on Susan's record, we were running through something and Husky was dialing up a treatment, bringing a real point of view to what was happening. The musicians came in to hear a playback and were just flabbergasted at how stuff is being used. They'd say, 'Oh. I get it. If you're doing that, here's where I'll go with it.' I rely on that because I don't know how you'd recognize a song if you're not treating the sonics as part of what you're dragging into your boat. A guitar part in a vacuum doesn't mean anything to me, but if I hear it treated this way, then I know what job it's doing and I know what else I don't need because of that."

Henry's quick to note that Hoskulds' treatment is not for everyone and has added Ryan Freeland to the list of engineers that he'll turn to for a project such as those for Mann or Jim White. "Ryan is the most musical Pro Tools user I've ever been around. It's incredible what he does with the computer and how

musical he makes that," Henry says.

Henry also has a number of musicians he'll turn to when casting a band around an artist, but he does not include himself on that list. "I don't play on anything that I produce, as a rule. I'm not one of those people," he says. Rather, he counts drummers Jay Bellerose and Victor Indrizzo; bassists Jennifer Condos, Paul Bryan and Dave Piltch; guitarists Chris Bruce, Jeff Trott and Doyle Bramhall II; and keyboardists David Palmer, Patrick Warren, Lisa Coleman and Jevin Bruni as members of his team.

"I'd like to think I'm developing this 'Wrecking Crew' mentality," he says. "I have this pool to draw from of people who I know are beautiful, soulful players. I understand their sensibilities and I trust completely that, as musicians, they are going to bring it. I know for a fact that they are going to be startling with what they do and take it somewhere that it isn't already. I'm really enjoying this small pool of people, and I can mix and match them."

The combination of engineers and musicians offers Henry some comfort and gives him the confidence to work in seven-day recording increments. It's not something, he says, that he has to convince artists to do. "I don't convince them of anything. I just say, 'If I'm going to do it, here's how I work.' I don't mean for that to sound heavy-handed. I would never commit to delivering a record in seven days and work with musicians whom I didn't know. I work with people I know, and I know how to communicate with them; I know how they listen."

> [Aimee Mann] said, 'It would be great for me to work with somebody who doesn't have The Beatles as their only frame of reference as far as record-making.' I said, 'Well that would be me. They're nice songs, but I've not done the research that it was this mic on this amp pointed east toward the river.'

Fourteen years since Henry got the big nudge from Burnett to work on both sides of the glass, he's as busy as ever. In addition to working away on a pending solo album, Henry spent this past summer working with legendary soul artists Ann Peebles, Billy Preston, Mavis Staples, Irma Thomas and Allen Toussaint. The result, *I Believe to My Soul: Session 1*, was released in October. "This is something that I've been developing for the past two years," Henry says.

In classic Henry style, the album was recorded during a six-day period in Capitol Studios' B Room. "This is the first of what will be a series of projects," he reports. "Following soon will be full-scope solo albums with some of these same artists." ■

David John Farinella is a San Francisco–based writer.

BY BREEAN LINGLE

Steve Goldberger's The Shed

Life-Altering Events Bring Music Into Focus

"From bad things, sometimes good things come," says Steve Goldberger, a longtime home studio owner/songwriter/musician/engineer from Niagara-on-the-Lake, Ontario. And it can't be denied that Goldberger's recent experiences substantiate such a statement. After surviving open-heart surgery in 1998 at 44 years old, he reassessed his life and decided to renovate the studio behind his home. Dubbed The Shed, by 2000, it became a place for him and his community of local and Toronto-based artists to gather and record their many projects using a Soundcraft Ghost 32, outboard gear and four ADATs. Then, two years later, while more than an hour away from home, he received a phone call that The Shed was burning down.

The studio was ruined, but Goldberger's instruments and a project he had been working on at the time were spared, but soaked in water. Rebuilding his studio again in 2003, he made sure that his choices—both in gear and in design—would bring him and his band, the Fringe Locals, a greater focus on sound quality and, most importantly, a sense of artistic satisfaction.

"[In 1998,] I was lying in the hospital bed thinking, 'Why am I doing all of these cover tunes and why don't I start writing again and recording?' I bought a couple of ADATs and did a live recording and mixed behind the house in The Shed. After the fire, I had a chance to take another look at things. The whole building was gutted and we added an extra room. I was able to bury cables in the wall, build a room-within-a-room for the control room and think about sound." The Shed's 12x14-foot control room features a floating floor and is bridged by two iso rooms and the 17x13-foot studio.

Goldberger's philosophy on gear was also altered. His newest iteration of The Shed favors the high-end vintage gear that he feels makes all the difference. "I found a couple of guys who have been outfitting the big studios for years and dealing in used gear. Talking to them convinced me that fewer pieces of really good stuff is better than a whole pile of mediocre gear that just sits there and doesn't really add anything to the big picture," he says. "Being a musician and artist, [it's great] to have the opportunity to put up a mic in the right place, run it through a UREI or an Avalon compressor and not have to EQ much. I can set up really fast and not have to worry so much about the technical aspects as much and just play the music and get it down."

Goldberger runs The Shed from a Sony MXP-3036 console customized with API pre's and EQs, which was set up by local engineer/tech whiz Frank Ditillio who occasionally assists sessions and provides maintenance. Also in The Shed are a Universal Audio LA-2A, six vintage Neve pre's, a couple of UREI 1178 limiters and a Studer A80 2-track all running alongside Pro Tools MIXPlus. He mixes in analog, using Pro Tools only to automate levels. Goldberger says, "It seems that just passing through those electronics makes such a difference." From a Hammond A100 organ to a variety of well-loved Fender, Martin, Sadowsky, Danelectro and Rob Allen guitars and basses, the studio is always ready for a session.

PHOTO: D. S. KARR

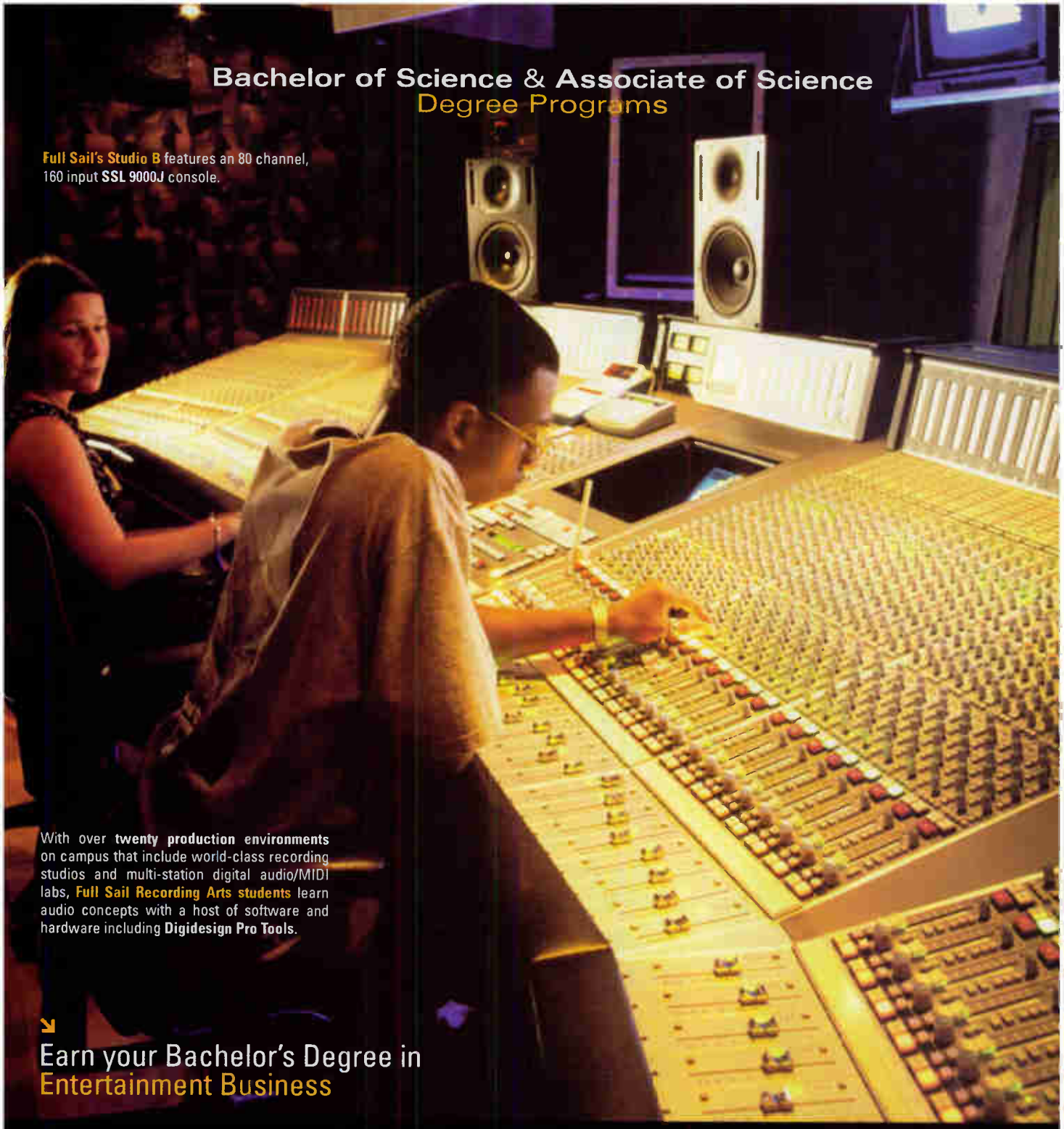
Steve Goldberger: In The Shed, where Clueless was created.

Microphones include Neumanns (U87, U89s), a range of AKGs (C452 EB, D-112, 535 EB and more), an MXL 300 condenser, Shure (SM57, SM58, PZM) and an Electro-Voice 531A. Monitoring is through Blue Sky System One and Tannoy PBM-8s.

Indie acts that don't want to drive to Toronto are welcome to visit Goldberger for mixing and mastering services, as The Shed features an Alesis Masterlink ML9600, but he says, "I don't consider myself a mastering studio. I'll run the stuff through the Neves, tweak the EQ and maybe give it some compression, limit it and make it sound a lot better than when it started out. For recording, I like the small projects: a guy and his guitar, overdubs or voice-over work."

Starting out after high school with a stint on the road as a bassist with the new-grass band Black Creek in the '70s, Goldberger learned the art of engineering by hanging out in Toronto studios from jingle producer/Sounds Interchange (Toronto) owner Syd Kessler, among others. Currently, he's focused on writing and producing his own releases while also lending a hand in engineering for local bands. Recent credits include the Marantz Project and Diesel Dog, classified by Goldberger as "funky fusion" and "a cross between the Grateful Dead and The Band," respectively. Goldberger's own roots, rock and folk-style music can be found on his latest effort, *Clueless*, which is available on his Website, www.stevegoldberger.com, and CD Baby. ■

Breean Lingle is a Mix *assistant editor.*



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The Interior Life of *Jarhead*

Sobering Sights and Sounds From the First Gulf War

By Blair Jackson

In some ways, the 1991 Gulf War, in which the United States and its allies decimated the armies of Saddam Hussein and ended his takeover of oil-rich neighbor Kuwait, is a forgotten war. The U.S. victory was swift and overwhelming, American casualties were minimal and, of course, for the past two-plus years, we've been embroiled in a much more calamitous military escapade in Iraq, which has all but obliterated memories of the first campaign there.

But now, the first Gulf War has been viscerally recalled in director Sam Mendes' *Jarhead*, which is based on a best-selling memoir of the same name by Anthony Swofford. This very different war called for a different kind of war movie, too. There are no traditional combat scenes; rather, it focuses on Swofford's interior life—what it means to be a soldier and how training and waiting for war can affect a person. The British-born Mendes, who won an Oscar for *American Beauty* and also directed the underrated gem *Road to Perdition*, has insisted that *Jarhead* is not an anti-war screed—just as Swofford's gritty 2003 book is not explicitly anti-war. But it is perhaps telling that the U.S. military declined to assist the filmmakers. Perhaps they were too busy cooperating with Steven Spielberg on *War of the Worlds*, where the U.S. bravely take on alien invaders (but get annihilated until the very end).

Supervising sound editor Pat Jackson

If you've seen Mendes' work, you know that he is a visual poet with a knack for "saying" as much with a well-designed shot as with a page of dialog. This is not to imply that he doesn't get the most out of his actors; indeed, he is a master at conjuring subtle and nuanced performances from his actors. In *Jarhead*, Jake Gyllenhaal as "Swoff" and Jamie Foxx as Staff Sgt. Sykes head an outstanding ensemble cast. It's not surprising to learn, too, that sound is very important to Mendes, and that his approach to that element of filmmaking doesn't toe the conventional line either.

Jarhead was shot in the desert country surrounding El Centro, Calif., east of San Diego. Willie Burton was the location sound mixer there. Post-production was mostly at Skywalker Sound in Marin County, with Pat Jackson acting as supervising sound editor; Kyrsten Mate, sound designer and sound effects editor, along with Bob Shoup; Richard Quinn, dialog editor; Malcolm Fife, Foley mixer (Foley was walked at Fantasy Studios in Berkeley, Calif., by James Willetts and Ben Conrad); and David Parker, re-recording effects mixer. Working out of Sound One in Manhattan (where Mendes has a residence) were ADR supervisor Jane McCulley and dialog and music re-recording mixer Scott Millan, who has worked on all three of Mendes' feature films. The final mix was also done at Sound One.

On the glorious September day driving along the serpentine back roads to rural Skywalker Ranch to talk to Jackson and Mate, I find post activity on two fronts. Inside the Technology Building's main mixing studio, Parker is at the huge Neve DFC console and Fife is seated at a nearby Pro Tools station adding Foley to a scene the post folks call "The Highway of Death." A convoy of Iraqis has been incinerated by American warplanes; all that remains is the charred shells of various vehicles, bodies burned beyond recognition ("crispies" in the soldiers' argot), the stench of death and the buzzing of flies. Parker and Fife repeatedly run through the scene, making sure that every footstep and gear rustle works with the striking visuals. Meanwhile, outside the building in a secluded area between two hillsides dotted with curious longhorn cattle, Jackson is supervising the "worldizing" of an ADR track for a key scene—FX recordist Dan Gleich plays back a DAT of a noisy loop group's work (cut in New York) through speakers and records it anew with a pair of distant mics to get some natural ambience on the track. "Using some digital reverb wasn't going to do it," Jackson explains. "Worldizing it makes it sound much more natural."

Jackson, whose past sound supervisorial work includes *The English Patient*, *The Talented Mr. Ripley* and *K-19: The Widowmaker* (and whose long career as a sound editor dates back to the mid-'70s), speaks highly of Mendes' approach to sound: "Sam uses sound almost in an emblematic way at times. Whereas on a film like [Peter Weir's] *Master and Commander* you heard every rope creak when you were in the hold, Sam tends to use broader strokes. He uses sound like a swatch of paint rather than as pointillism, where you hear every mosquito.

"The first part of the job was extracting

—CONTINUED ON PAGE 66

The Producers

By David Weiss

PHOTO: ANDREW SCHWARTZ/UNIVERSAL STUDIOS

Frank Wolf is caught up in a classic case of things moving full circle—the hilarious 1968 Mel Brooks film *The Producers* gave way to a 21st-century Tony Award–winning reinvention on Broadway, which then led back to the silver screen with this year's *The Producers: The Movie Musical*, starring Nathan Lane, Matthew Broderick, Uma Thurman and Will Ferrell. While all of that critically acclaimed history might bring its fair share of pressure, Wolf, serving as recording engineer/scoring mixer on the Universal film, simply recognizes the unique joys of creating a soundtrack and an album.

"I love the diversity of it," explains the easygoing Wolf, temporarily relaxing outside of Sony Music Studios' Neve 88R–equipped Studio B in New York City. "It could be a giant orchestra one day, a jazz band the next and a rock band the day after that. In this project, the orchestra is mostly what I would call an expanded 'pit' band. I am sort of technological, and there's a challenge in trying to make everything work, but most importantly, there's something about the fact that you do the music relatively quickly. It's an intense musical event in the studio, and as far as recording, there's a certain live excitement about soundtracks as opposed to a rock or pop record, where everything is mostly done separately, a little bit at a time and tweaked."

An experienced rock, pop and jazz engineer/producer, Wolf's portfolio of soundtracks began to grow in the 1990s with credits for such films as *Toy Story* and *Toy Story 2*, *The Mambo Kings*, *Hercules*, *Monsters, Inc.* and *Meet the Fockers*. With that experience comes the ability to craft a road map that can guide a movie musical's massive logistics, ultimately turning a Broadway songbook into a sparkling 5.1 film soundtrack and accompanying stereo album release.

Wolf's *Producers* job began in February 2005, with a call from the project's orchestrator and producer, Doug Besterman (who also served as orchestrator of the Broadway show). "They actually

—CONTINUED ON PAGE 69

Rent

By Blair Jackson

PHOTO: PHIL FRAY

On a splendid May morning in Building 180 on Treasure Island, in the middle of the San Francisco Bay, the principal cast members of director Chris Columbus' film version of the hit stage musical *Rent* (Revolution Studios, Sony Pictures) are slowly assembling for the day's shoot. What was once a hangar on a former military base has been magically transformed into a series of elaborate film sets. The story takes place in New York, and at the heart of the elevated set is a large, funky loft that has been rendered in such amazing detail it looks like it was dropped in by helicopter from Manhattan.

Through the loft's "windows," a radically scaled-down version of a New York City street is in the foreground; behind that is a huge photo of a section of New York skyline—a Translite film—that must stretch 100 feet or more around the soundstage. When it is lit from behind, it looks astonishingly real. Outside, the loft set is the usual clutter one expects to find during a movie production: batteries of lights, props of every kind (in this case, it's all thrift store clothing and furniture, in keeping with the story's financially humble characters), a set of tracks for dolly shots behind the loft and, in an adjacent area currently being used for lunch service, a replica subway car that will figure into the story later. There was also some exterior filming on location in New York, but Columbus lives in the San Francisco Bay Area and likes to shoot locally when he can, so all of the interior locations and sets, as well as any exteriors production that can cheat to look like Greenwich Village, are shot here.

The on-set sound world is located on a platform adjacent to the loft. It's here that we find production sound

mixer Nelson Stoll, music supervisor Matthew Sullivan, music playback Pro Tools operator Erich Stratmann and—what's this?—some of the attractive young cast members waiting to start filming the next scene. For some reason, when Stoll invited me to the set to check out the action, I didn't think that stars Rosario Dawson and Taye Diggs would be hanging out with the sound crew before takes. And you didn't think production sound was glamorous! [Note: Dawson, Diggs, Anthony Rapp and a few others are from the original Broadway cast.]

"The *Rent* soundtrack comprises mostly pre-recorded songs," Stoll explains, "but there are also a number of short dialog scenes and live transitions in the film that bridge and supplement the songs. Chris Columbus also wanted to record some elements live and have them seamlessly integrate into the pre-records. One was a live stage performance scene, 'Over the Moon,' by Maureen [played by Idina Menzel], a protest/rally in support of housing for the homeless and local artists. Because of the improvisational nature of the performance and the interaction with the audience, protesters and police, the dynamic power of the scene would be lost if it was all lip-synch to playback. Using a DPA headset mic allowed us to record all the dynamic detail of her performance, while keeping the background noise very low. The consistent high quality was just what we needed to transparently mix it into all the other pre-recorded music elements."

Sound mixer Nelson Stoll with his custom, soundproof music playback cart

Stoll has been involved with film sound since the '70s, getting his start working on documentaries and later moving on to big-budget features, including *Dune*; *Total Recall*; *Basic Instinct*; *The Cable Guy*; Francis Ford Coppola's *The Rainmaker*; the Chris Columbus films *Mrs. Doubtfire*, *Nine Months* and *Bicentennial Man*; and many more. He takes the art and craft of production sound very seriously and has tried to stay on the technological tip of the profession by continually updating his rig and recording methods.

"For *Rent*, I wanted to make sure we had a quality 24-bit multitrack for our main production recorder to give the film sound the creative flexibility we would need," he says. "After my experience using a [Zaxcom] Deva to record multitrack stereo effects on the last two *Matrix* films, I wanted to deliver the multitrack audio on FireWire hard drives. The transfer rates are just too slow with DVD-RAM disks to meet the editorial time demands for dailies, especially recording high-track–count 24-bit files.

"To maintain 24-bit quality through the final mix meant very early coordination and planning with picture editing, telecine transfer, dailies projection and especially Skywalker Sound post, even though it would be many months until sound editing would begin," he continues. "I found out the hard way that the production sound quality in the final film usually suffers without this oversight. So I was pushing the process and wanted to make sure it all worked. An added bonus is that this workflow planning is also necessary to control costs."

On a musical film such as this, it was critical to balance the needs of production recording with providing a workable playback environment for the actors. According to Stoll, "I designed a soundproofed music playback cart, based on a Pro Tools DAW running on a water-cooled 2.5GHz Mac. The Digi 002 Rack interface fed a Mackie console to distribute wired and wireless music and music timecode. Under the direction of our music supervisor, Matt Sullivan, our on-set music editor, Erich Stratmann, provided the custom sync playback music mixes needed. These were edited from the multitrack music stems from the music studio.

"We worked hard to use quality medium-high–level speaker playback whenever possible, as the actors seem to more effectively immerse themselves in the music, providing performances that appear much more real. Since lip-synch is so critical in making a musical film believable, I wanted to use speakers that were very coherent, natural-sounding and clear, while still having the power and directional punch to reach in the wide shots where the speakers could not be close. I had used Meyer UPAs in the past, but was concerned about their weight in our fast-moving film environment. The smaller Meyer UPJ turned out to be just the ticket and had plenty of power in all but a few situations where we used an array of two of them in a custom, adjustable mount on a high stand.

"We were also equipped to feed the music to wireless earpieces when speakers could not be used and to feed a 40Hz 'thumper' track to a subwoofer when neither speaker playback nor earpieces would work," says Stoll.

One challenging situation during the limited filming in New York arose because of the city's strict limitations on playback volume. For shots of Rapp's character singing while riding a bicycle, "The wireless earpieces did not fit well in Anthony's ear and we decided a portable speaker was a better solution," Stoll says. "So we put a small radio-fed speaker in his backpack for sync music playback." Stoll notes that the production mixer for the New York scenes was Danny Michaels, "who is experienced with music film playback.

"The big Greenwich Village exterior crowd scenes outside the loft were shot on the back lot at Warner's in L.A., because both New York City and the Bay Area had strict noise limits after 10 p.m.," Stoll continues. "Even on the lot in L.A. I had to make and document anticipated noise level measurements in the adjacent neighborhood due to concerns that we would be shut down. Luckily, all went well and we got great performances."

For capturing the actual production tracks, Stoll chose an HHB PortaDrive 8-track, 24-bit digital hard disk recorder. Why? "The ability to record eight tracks, having an accurate timecode clock, complete word clock I/O to allow synchronization with outboard digital equipment and additional recorders, and the ability to deliver BWF files on FAT-32 FireWire drives were some of the reasons," he answers. "We had some initial quality control problems with our first recorder,

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but once we got a new machine, we had no problem with any of the recordings and it was rock-solid for the show. Whatever mics were used to record the scene—including all boom mics, radio mics and special mic plants—would be recorded to discrete iso tracks. This allowed post sound to create any desired custom mixes to match different camera perspectives or any other mix needs."

Stoll notes that although he likes the A/D converters in the PortaDrive, "I wanted to use multiple Waves L2 hardware Ultramaximizers for conversion, dither, noise shaping and dynamics control. The L2 was the first A-to-D converter/processor that allowed us to record digital production audio that exceeded the quality of our best analog tracking.

"The L2 has two unique features that I feel should be included in every digital production recorder," Stoll continues. "One is a transparent, configurable digital limiter—a look-ahead process with about 25 dB of limiting. The other is the related ability to set the maximum recorded dBfs [digital full scale] level. When recording 16-bit audio, we usually set this to -1 dBfs and have it set to -3 dBfs for 24-bit. Levels above this can add distortion for a variety of reasons. This type of device is especially useful when you have to deliver 16-bit masters and you want to retain the best quality through the film release print. Making judicious use of the limiter and mild noise shaping on the L2 makes 16-bit recordings close to good 20-bit masters—and overload-proof. Just make sure your analog front end is up to it!

"The multiple L2s were fed by my Neve analog console via custom direct amps, designed by Stephen Balliet of Reflection Audio. Stephen, many times, is the recordist, freeing me up to do the sound design, mic mounting and placement, and overall mixing." Stoll's other assistant on the film was Brian Copenhagen, who handled most of the equipment management and second boom work.

Stoll's goal was to provide high-quality production audio that meshed perfectly with the copious pre-recorded elements. The result: a musical that feels natural, not staged. "Being able to contribute to a powerful, sound-driven film like *Rent* gives me great satisfaction," he says. "It is very hard for both the filmmakers and the film viewers not to immerse themselves in a wonderful production like this. I dare you to try not to tap your feet to the music when you see it!" ■

Jarhead

—FROM PAGE 62

from Sam what he wanted," she continues. "He has a lot of ideas of his own about sound, and he's also very decisive, so you quickly learn the types of things that he likes and doesn't like. But when he says he wants silence, he means *no audio.* For example, there's a place in the movie where there's incoming artillery for the first time, Sam wanted it to be absolutely silent as all these bombs are going off—yet the visual is really great because there's this rain of grit and sand debris. The first time I saw it, I thought, 'You want to hear that [rain of grit] because this whole movie is from Anthony Swofford's point of view.' It was that way in how it was shot and the way it was edited.

Kyrsten Mate, sound designer and SFX editor

"So I wondered, 'Could we have that sound?' And initially he said, 'No, I want it silent.' Then, when you see the final version, it's quite wonderful: The explosions start and they get distant and muffled and then it goes to absolute quiet and then there's a subtle rain of grit. It's a profoundly moving moment in the film because you really sense something about what it's like to be there. So it was taking the director at his word of what the effect was that he wanted, but still experimenting around the edges, saying, 'Take a listen to this.' He's totally open to possibilities. He'll entertain ideas, but he's also very quick to say, 'Nope, I don't want to hear that.'

"Sam likes to feel the environment that the action is happening in without having it intrude on what he wants to have the audience hear, whether it's dialog or some action. He doesn't want the clutter of extreme detail. Like there's a moment when Jamie Foxx is giving a speech and he's walking back and forth on a wooden floor, so, naturally, I would have wanted to put his footsteps in there, but Sam didn't want it, so we didn't do it. He wants sound to serve the moment; still, in the important moments, you don't get the feeling that there's not enough sound."

So, it's: "See a dog, and maybe you hear it, maybe you don't"?

"You hear it if it's important," she says with a laugh.

Even with Mendes' somewhat quirky sonic sensibilities, there were still plenty of intriguing elements the sound crew focused on. For one, "The oil fires are almost like a character in the film," says principal designer Mate, who has worked as a sound effects editor for more than a decade, with credits that include *The English Patient*, *The Talented Mr. Ripley* and *K-19* with Jackson; and such films such as *Chocolat*, *The Shipping News*, *AI: Artificial Intelligence*, *The Lord of the Rings: The Two Towers*, *Minority Report* and *The Incredibles*. "I didn't realize what those fires were like until I saw this film that Sam recommended I watch, Werner Herzog's *Lessons of Darkness* [1992], which is a documentary about fighting the oil fires in Iraq and Kuwait during that war. Each of these fires is so big and forceful. It's like 10 fire hydrants together all blowing this thick, viscous liquid up into the air and then it catches on fire."

To capture the sound of the oil fires, Mate says, "I used a large variety of odd things: water pressure, obviously—a fire hose; also propane tanks dumping out compressed air; the sound of a [paint] spray booth—anything I could think of that has force and power. I had worked on *The Lord of the Rings*, and from that library I got lava flows, geysers and things that had been recorded by the New Zealand crew that were good for the low end. Then to give it some personality, I added some leopard exhales and inhales—they push a lot of air through their body cavities. Of course, you process it so it doesn't sound like a leopard." In the end, Mate had combined and processed about 20 tracks in Pro Tools to create the oil fire effect.

The desert itself is almost like a character, with its own moods and sounds. "There's an otherworldliness about being in the desert," Mate offers. "We feel transported and displaced. That's what Sam does visually and that's what happened to the soldiers, so he was trying to convey that." Aurally, that translated to conjuring different desert winds and ambiences. "Yes, we're quite attuned to winds here at Casa *Jarhead*," she

says with a chuckle. "There's a great variety of hot winds. I went out to the desert in Nevada, far from any road, and recorded some things out there. I also had some good recordings from the Tunisian desert after *The English Patient*, so that was really helpful, too." For the new recordings, Mate used a Sound Devices 722 2-channel recorder and an X/Y pair of Neumann SKM 140s, "which have a lot of nice low end," she says.

"There's a minimalist feeling to parts of the film," she continues, "where you're in this desolate place and it's a hot day with no wind. And then there are also scenes with a lot going on—putting up camp and lots of vehicles and that sort of thing." For the latter, Jackson sent a pair of recordists down to El Centro to capture humvees, Jeeps, tanks and planes during the film's actual production. A separate weaponry session took place at a remote canyon locale in Marin. Mate was also excited about getting to do "some real dude stuff": For a scene in which some flares are inadvertently set off, she put parachute flairs on long cables and then recorded the passbys. "It was very forceful and in-your-face," she comments.

"In this film, though, there are all sorts of things you hear but don't see, so you have to create an offscreen world," Mate says. "The war is happening three miles away and you don't see it, so you have to treat the [recordings of] explosions so that they sound distant. I used a lot of different kinds of EQs and reverbs to help me, but a lot of it was picking the right sound that would help convey it. You can't have too much of the crack of the head of an explosion because that's what you hear when you're standing next to it. You need more of the low-end boom, which is what you'd hear from farther away. Sometimes it felt like we were making a radio play because there was so much offscreen sound. Then it becomes a question of keeping that out of the way of what Sam is focusing on in the scene."

In the end, it came down to Mendes' tastes and desires. As Jackson put it, "The test of making a soundtrack is to bring what you have—your aesthetic sensibility—in the service of the vision of the director, or the picture editor and the director."

In this case, the picture editor also happened to be one of the true legends of sound design, Walter Murch (who also has a credit as re-recording mixer). "He would definitely step forward occasionally and say, 'Well, what about...?' So he had a lot of input, as well," says Mate. "He's very good at articulating what he likes or doesn't like about a sound, which is very helpful. It's never just, 'I don't like it.' I've known him

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for a long time, and he's always been such a nice guy to me."

Adds Jackson, "I came through the Walter Murch school of sound design. I started on *The Conversation* and worked on *The Godfather II* and *Apocalypse Now*, so he's had a profound influence on me. Not so much technically, but in how to listen, how to pay attention, how to pick the sound that tells you what the quality of the audio in the space in the story is. Walter has set the bar pretty high for being open to ideas and listening to them, wherever they come from, and to entertain the wildest possibilities.

"So his opinions are formative, but it's really Sam that is the guiding light that we're orienting the sound around: Is this what he wants? Is this what he's going for in this scene? And the nice thing about Sam is his clarity and his directness and his understanding of sound, and Walter's main effect on the sound is inspiration. And if Walter likes it, it's fun. Same with Sam. One of the most satisfying things we do is we get a charge from good work—our own or someone else's. So when the magic happens onscreen and the sound you've brought to the table really changes something or enhances it, that's what we live for." ■

The Producers

—FROM PAGE 63

flew me out to New York for a pre-production meeting before we started, which they generally don't do with an engineer; usually, I'm there the first day in the studio," Wolf says. "We talked about how to approach the music for *The Producers*, which is quite complex. There are almost 30 songs, and we're often coming in and out of dance sequences, coming in and out of tempo. The actors sang live with the orchestra, and some of these tunes are eight minutes long and quite complicated."

Because *The Producers* contains multiple scenes with the actors singing and dancing to the music on camera, the first step was realizing that all of the music had to be recorded before shooting began. "We record all the songs with the actors singing live to an orchestra so they have playbacks to shoot to," elaborates Wolf. "Then we polish those vocals, taking different takes and putting together a performance they can sing to repeatedly during playback when the filmmakers shoot the scene.

"Keep in mind that they're also recording the singing actors' vocals with shotgun mics when they're shooting the scene, because sometimes they'll actually get a better

performance during the shooting. If the actor's performance on set is usable—and it's not always usable because you've got the sounds of people dancing and shouting from off-camera—that's better because then the audio is perfectly in sync with the visuals."

For Wolf, the initial orchestral/vocal recording stage took place at Right Track's 4,600-square-foot Studio A509 on Manhattan's West 38th Street, taking full advantage of the room's 96-input SSL 9000 J, 35-foot-high ceiling, five iso booths and bountiful natural light. "We knew we were going to be recording in New York, and Right Track is the place," Wolf says. "It's about the right size for 60 pieces, and it provides several iso booths, which, in this case, were really needed. The drums were isolated, the singers were isolated and any close percussion was isolated. The players, who were mostly from the Broadway show's pit orchestra, were great—everyone was really excited about doing this project."

Wolf's experience with recording vocals and his knowledge of the subtle differences between the needs of the film's soundtrack and the album release allow him to capture the best possible performance for both situations. While in the studio, in addition to recording the singer with the standard close mic, Wolf simultaneously employs a shotgun mic set farther back to emulate as closely as possible what would be recorded on the set. Only the higher-end studio mic will be used for the album mix, but the film mix will incorporate a crossfade that begins with the shotgun before transitioning to the studio mic. "In the context of a film, if you've got dialog suddenly breaking into song, the dialog was recorded from a shotgun mic," Wolf points out, "so it's more believable if the song begins as if it were coming straight from that same mic."

When possible, Wolf will take the time to make the best match possible between the vocalist and his or her microphone. "Recording vocals is an expertise I have that comes from my background doing [rock and pop] records, whereas many of the guys primarily doing orchestral work may not have done as much rhythm section or vocal recording," he says. "I have a half-dozen mic choices, including the AKG C12, Neumann U47 tube, Telefunken 251, the Brauner VM1 KHE and, more recently, the Sanken CU44x. I like a 47 for a female singer because it has a lot of body to it and helps to support a higher voice. I like the Brauner for somebody who is putting out a great sound because it's capable of capturing anything—it's a great, clear, powerful microphone.

"A lot of times, if I'm working with a singer I haven't worked with before, I'll A/B them with a couple of passes at different mics because you never really know. In the case of *The Producers*, however, we were moving through so intensely that the setup I had for the Sennheiser shotgun mic and the Sanken mic stayed. We'd have Uma Thurman for an hour, she'd leave; Matthew Broderick would come in; then Nathan Lane; and there was no way we were going to be able to experiment with different setups. I chose the Sanken because it's a current mic: If we plugged it in, it would work and be repeatable. There's no fussiness that you sometimes have with older mics. The mic pre's were Millennia Media, which I find to be extremely clean and reliable. Everything was recorded into Pro Tools|HD. In this case, it was 48k/24-bit, even though almost everything I do now is 96k."

Wolf takes a Tonmeister approach to recording the orchestra, using careful mic selection and placement to get the most out of the sections, including harp, strings, woodwinds and brass. "I have a trio of Neumann M50s that I carry with me, which I set up in a Decca Tree," he states. "There are two setups that I use: sometimes five mics across the front and sometimes a modified Decca Tree and two wide mics. For the overall orchestral sound, that's 85 percent of what I use, and then I fill it with close percussion, drums, guitar, accordion—instruments that don't speak in the room—but a big part of the sound is the room mics."

Raw tracks in hand, Wolf began making rough mixes for the film crew to shoot to, delivering stems that included orchestral stereo, rhythm section stereo, choir and separate vocals. Supplied with those elements, the music editor could go to the set prepared to play any combination requested by the director or the actors, including a mix-minus vocal in case Broderick, for example, decided he wanted to record his vocal live on set.

For Wolf at this stage, knowing the shooting schedule is critical. "They'd say, 'Next week we're doing this tune and that tune,' so I'd concentrate on those songs. I was always ahead of them by a few days," he says. "We had 400 orchestral takes and as many vocals, so it all had to be temped down to a way they could play it on the set and not have to manage anything—just hit Play and there it goes."

After the scenes were shot, Wolf was sometimes handed back vocal tracks recorded on set to incorporate into his final mixes. Before he could move into that phase, however, there was a sticky problem

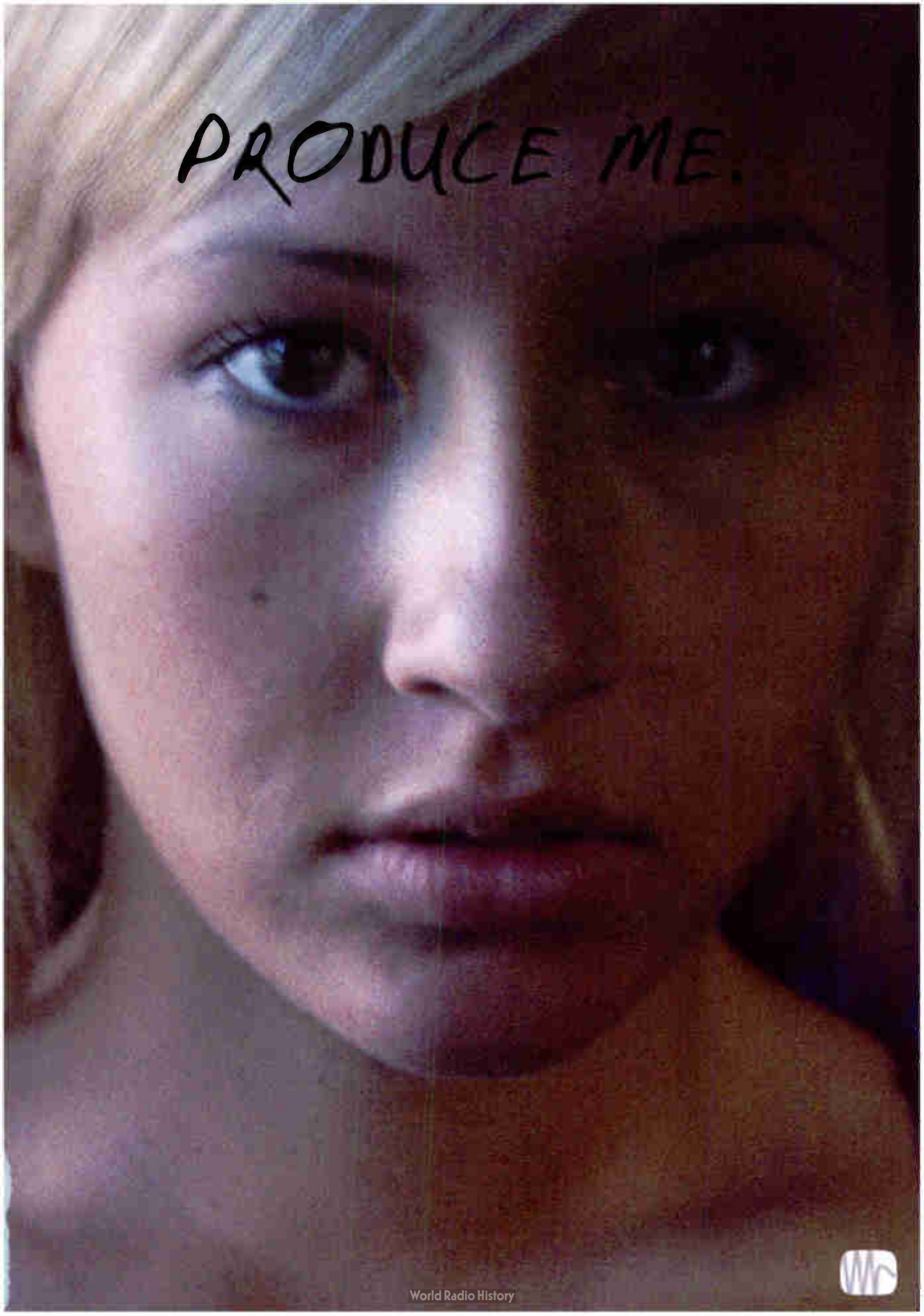
that he expected: In the process of shooting the scenes, the director and music editor were sometimes forced to create holes in the music that would be filled later on. "This happens a lot," Wolf reports. "They realize, for example, that Matthew Broderick needs extra time to get from here to there, meaning the music editor has to open it up for four measures and now there's a hole. So we come back to Right Track and record inserts with the same orchestra.

"Re-creating the parts is tricky, but we knew we would be coming back, so we snapped the console, measured the mics' distance and hopefully we can come back and record right into the same set of tracks, sound for sound and level for level. Then I reinsert the new pieces at Sony through the same setup, and in theory it should go right across. That's par for the course in a musical: There's no cart you can put before the horse or vice versa. You have to start somewhere, and if you start with the music, invariably the music will change."

Afterward, the rough stems will be updated, allowing the creation of a temp/director's cut where the music will be edited to match to picture, opening the door for Wolf to finally execute a final 5.1 mix for the film and stereo mix for the album on Sony Studios' Neve 88R and ATC monitors. "The big difference between making a pop record and one with an orchestra like this is that there's not a lot of processing," he says. "I'd say on 95 percent of the vocals, however, I use an Eventide Reverb 2016. It has a smooth sound, leaves the vocals in clarity and puts enough warmth and hall around the vocal so it's supported inside the music. It's very controllable and friendly to use."

Once the final mix is complete, Wolf will deliver it to the dubbing stage with a choice of flat and dry or processed vocals to give the dub stage mixers complete control for a believable transition in and out of dialog. There, his colleagues will balance the final levels between his music mix, the dialog and the sound effects. Meanwhile, the album sequence and mix will also be trimmed in the interest of cutting it down to the best 60 to 70 minutes of songs that feature vocals.

At that point, however, it's safe to say Wolf will have begun treating himself to a few days of R&R, as he wraps up an intensive journey with four months of studio man-hours logged between February and October, quite possibly qualifying *The Producers: The Movie Musical* as his most intensive soundtrack production yet. "When I hand the mix off to the dubbing stage," Wolf says with a grin, "I can light a cigar." ■



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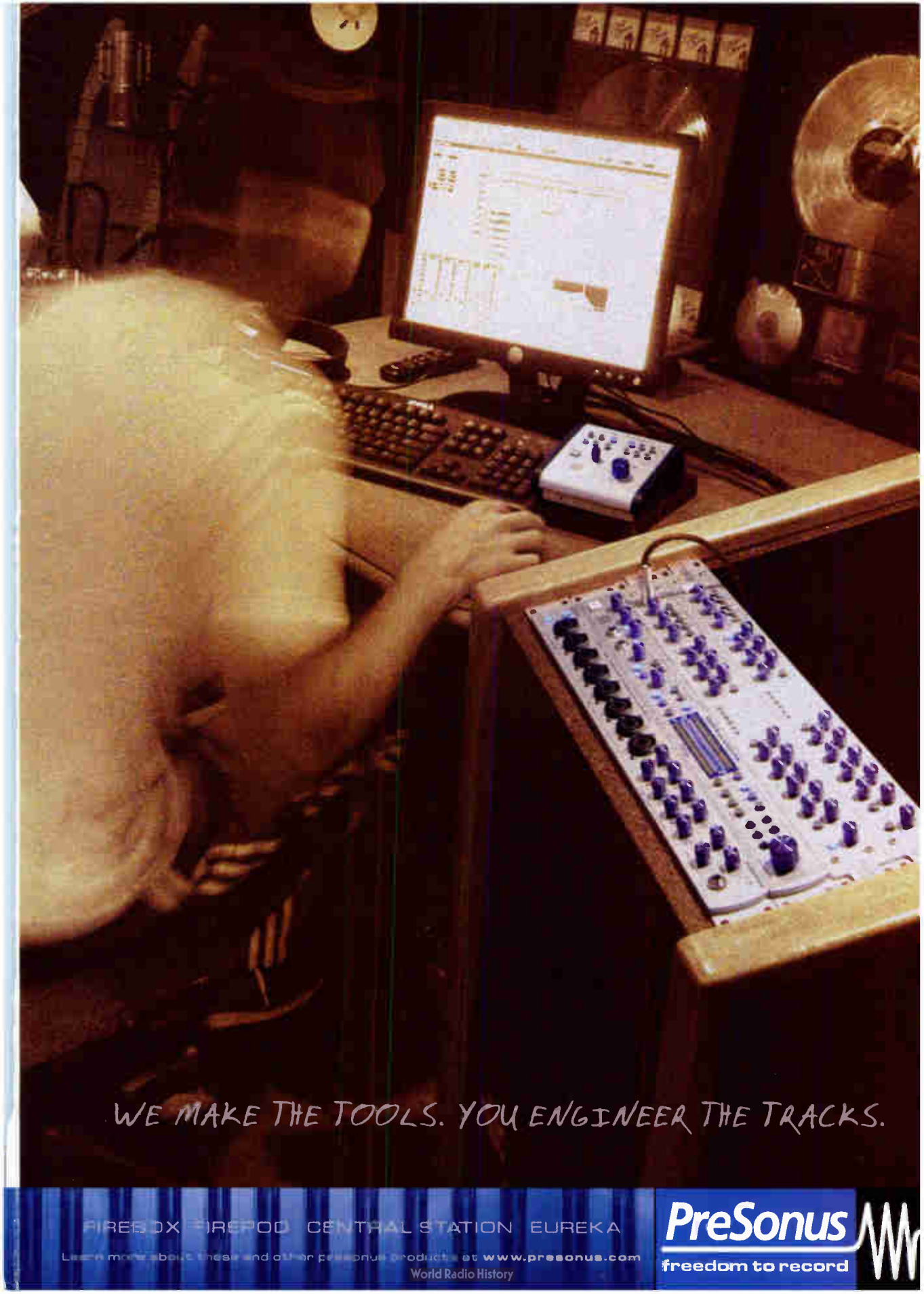

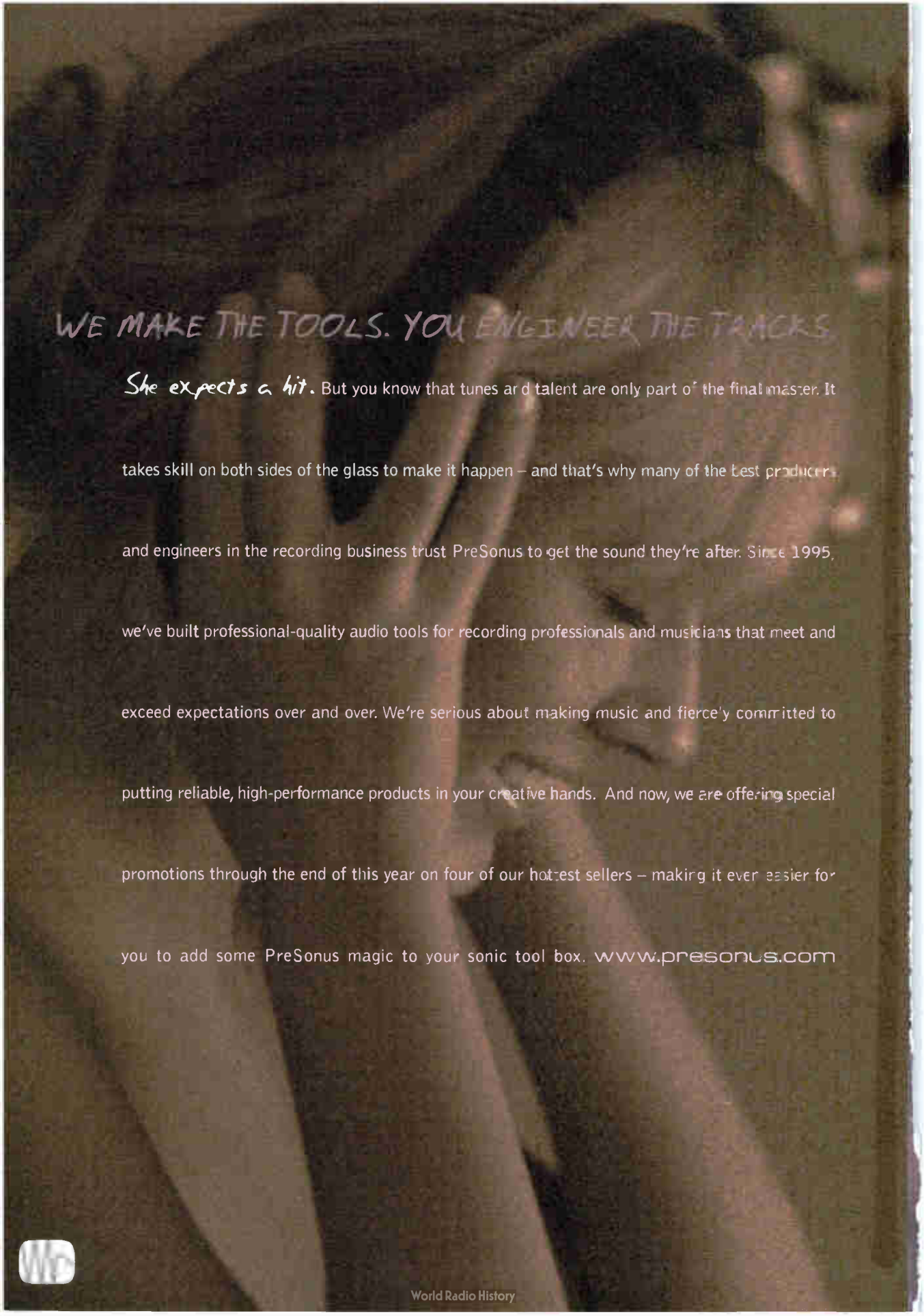

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IDG WORLD EXPO

Sheryl Crow

Photos and Text by Steve Jennings

In support of her latest effort, *Wildflower*, Sheryl Crow is out on a short tour, bringing along an 11-piece string section, front-of-house engineer Bruce Knight, monitor engineer Geno Salerno, monitor tech Matt Stager and crew chief Matthew Stahlhut. *Mix* caught up with the tour at the Greek Theatre in Berkeley, Calif.

"Mixing has been great fun and a big challenge in getting the separation with so much midrange information in the mix," Knight says, "between two to three guitars, a piano and a organ happening at the same time with the 11-piece string section," which comprises seven violins, two violas and two cellos. The tour is carrying a Clair Bros. P.A. (eight i4s and four T2 subs per side) and a DiGiCo D5 Live FOH console, "which has been great," Knight says. "I'm using snapshots of fader movements and mutes on a per-song basis. It's the first time I've used a digital console on tour. I've had a lot of inputs with Sheryl in the past, and now with the strings and all the effects returns and playback, I'm up to 90 inputs. It's great to have everything within an arm's reach."

Knight's outboard rack includes a BSS 901 with Summit TLA 100 for Crow's vocal (she sings through a Shure wireless with SM58 capsule), a Summit DCL 200, a Crane Song STC-8 for bass DIs and two Distressors for acoustic guitars. For in-ears, Knight chose Future Sonics and Ultimate Ears, with Sennheiser EW300 G2 Series transmitter/receiver.

Front-of-house engineer Bruce Knight

FixIt

U2's monitor engineer, Dave Skaff (Alicia Keys, Shania Twain), recently picked up a Digidesign VENUE digital board for the band's current tour; when* Mix *caught up with Skaff on the U2 tour in April 2005, he was using an ATI Paragon II. Here are some tips he picked up on making the switch to a digital console.

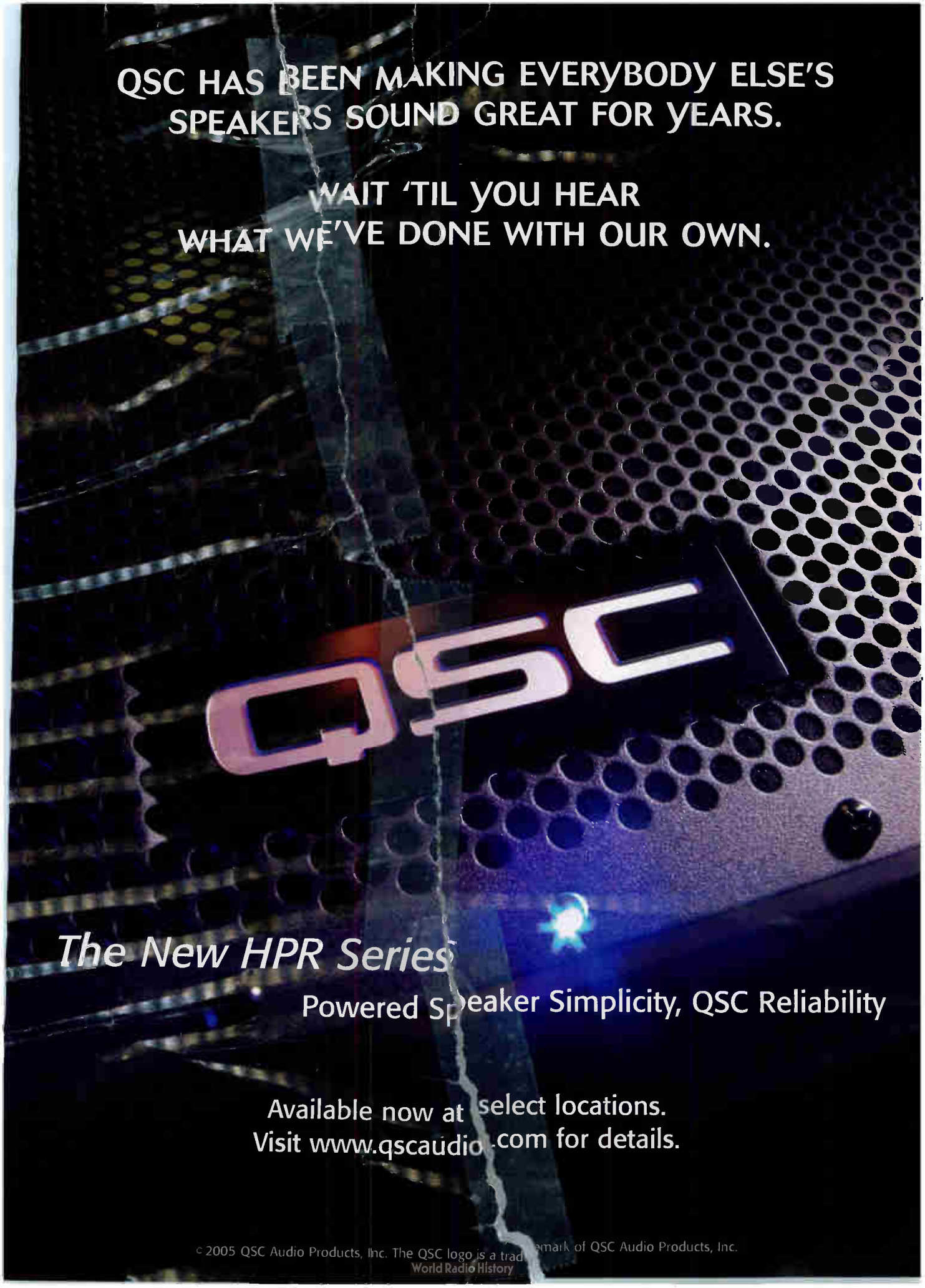
Managing snapshots, presets and safes: These can be incredible tools for helping you manage a complex show, one that has multiple bands, a high number of cues or radical bus reassignments during the show. Sounds like the answer to a mixer's prayers, right? You've been mixing without them for years and you should continue mixing without them when you first go digital. After you've spent some time becoming comfortable mixing on the board, then consider using snapshots or presets to help with the more difficult aspects of your mix. But beware: The console will do just what you tell it to. If you include everything in the scope of all your snapshots, the changes you make in between snapshots will be discarded when you fire the next snapshot. You must carefully think through what is in your current snapshot and what is—or is not—in the next one you fire. Include only the channels and parameters that you absolutely need to have stored.

inside

News

The Blue Man Group recently opened at the Panasonic Theatre (Toronto). P.A. Plus' head systems engineer, Mark Radu (above), installed a Lake Contour digital speaker processor and Lake Mesa Quad EQ digital matrix processors.

Rental company **Masque Sound** (East Rutherford, NJ) recently purchased a **JBL VerTec** line array system. Says JBL VP of tour sound, David Scheirman, "The synergy of JBL's loudspeaker system technology with the unique technical expertise of Masque Sound creates interesting new options for independent sound designers who cater to musical theater and corporate events."...**Omnimount Systems** partnered with **D-Tools'** Manufacturer Partnership Program (MPP), which allows companies to access up-to-date OmniMount product information...Washington's **The Gorge Amphitheatre** features Ford Audio's (Burbank, WA) **Electro-Voice XLC** as the house delay rig, combined with additional boxes rented from Horne Audio (Portland, OR). Ford Audio's Gary Ford says, "This is a broad, asymmetrical venue and in additio the house delays, we usually fly side arrays of h XLCs to cover the audience areas adjacent to the stage. For [a recent REO Speedwagon show], the wide dispersion of the XLC and XLD combination made a stage-right array unnecessary."...Lenny Kravitz is out on tour with FOH engineer Laurie Quigley, using a **Midas XL4** console and eight **XTA 226s**, which were processed through **BSS Omnidrives**. Says system tech Ted Bible, "They used the BSS to split and tune it properly, and used the EQ in them, as well."



On the Road

Juanes

Swept up in the Latin crossover craze, alongside such artists Ricky Martin and Shakira, Juanes continues to deliver strong studio albums that hit and stay in *Billboard*'s Latin Top 10. Currently out on tour with a seven-piece band and gear provided by Showco/Clair, Juanes' front-of-house engineer, Rob "Cubby" Colby, is no stranger to the Latin flare, having mixed for Martin and Shakira previously. *Mix* caught up with Colby during the midst of the U.S. tour.

How much gear are you carrying?

We are using the i4 line array with the Showco subs. The arena system is the standard 14- or 16-deep front hangs with 8- or 10-deep i4s for side hangs with 10 subs a side. Front-fills are on top of the two subs on either side of the "ego" ramp that goes out 16 feet into the audience. The FOH environment is small with the DiGiCo D5 and only a small rack with two 737 Avalon comps and two Distressors. Effects are TC Electronic 2290 and 3000.

Do you have a mixing technique?

The music is clean: three guitars, keys, bass, percussion and drums. It is a straight-ahead mix; not heavy on effects. I go for a punchy drum mix, a music mix of guitars and keys and tight percussion, with a deep, dry bass guitar sound.

Tell me about the DiGiCo board.

I've been using the console for the last three tours with various artists. I continue to learn the depth of the console from tour to tour. I rely on the dynamics quite a bit. For this tour, I've built a snapshot of each song as there are a lot of guitar changes. Each guitar player can switch from acoustic nylon to acoustic steel-string to electric guitars.

What about when you're off the road?

I spend time with family and friends. We do a lot of boating here in Minnesota until winter comes; then, it's snowboarding or skiing and even some ice fishing.

Now Playing

Bonnie Raitt

Sound Company: Schubert Sound Systems
FOH Engineer/Console: Paul Middleton/Gamble EX
Monitor Engineer/Console: Doug Gherma/Yamaha
P.A./Amps: JBL VerTec/Lab.gruppen fP6400, fP34
PL236A
Monitors: Shure PSM 700
Outboard Gear: Lake Contour; BSS 960; Focusrite
Yamaha Rev-5, PCM70; Eventide H3000; SansAmp
dbx 160A; Drawmer DS201; Summit TLA-100, TLA-
661; Crown D75R
Microphones: Audix OM5; Shure KSM 32, SM57,
D112
Additional Crew: John Schirmer, system tech;
Roland Ryan, audio tech

Mae

FOH Engineer/Console: Thomas McNabb/Mac
Monitor Engineer/Console: Band handles
selves/Mackie TT24
P.A./Amps: House-provided
Monitors: Sennheiser Evolution G2, Senss
Soft2x custom ear molds
Outboard Gear: three dual-processo
Nuendo 2 as VST host. It's a mobile r
live sequencer; operating Native Ins
controllers and at FOH, serving ou
plug-ins, including Universal Audio

56
PM5D
0, QSC
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Tech 21;
50; Aphex
AKG C414,
kie TT24
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phonics ProPhonic
r PCs running Steinberg
cording studio acting as a
truments soft synths, MIDI
itboard processing via VST
UAD-1, TC Elecronic Power-
Core FireWire); MOTU 828mkII
Microphones: Sennheiser 602 (kick), 604 (toms), 614 (overheads), 865 (vocal), 902 (kick), 905 (snare), 906 (guitars), 935 (backup vocals)

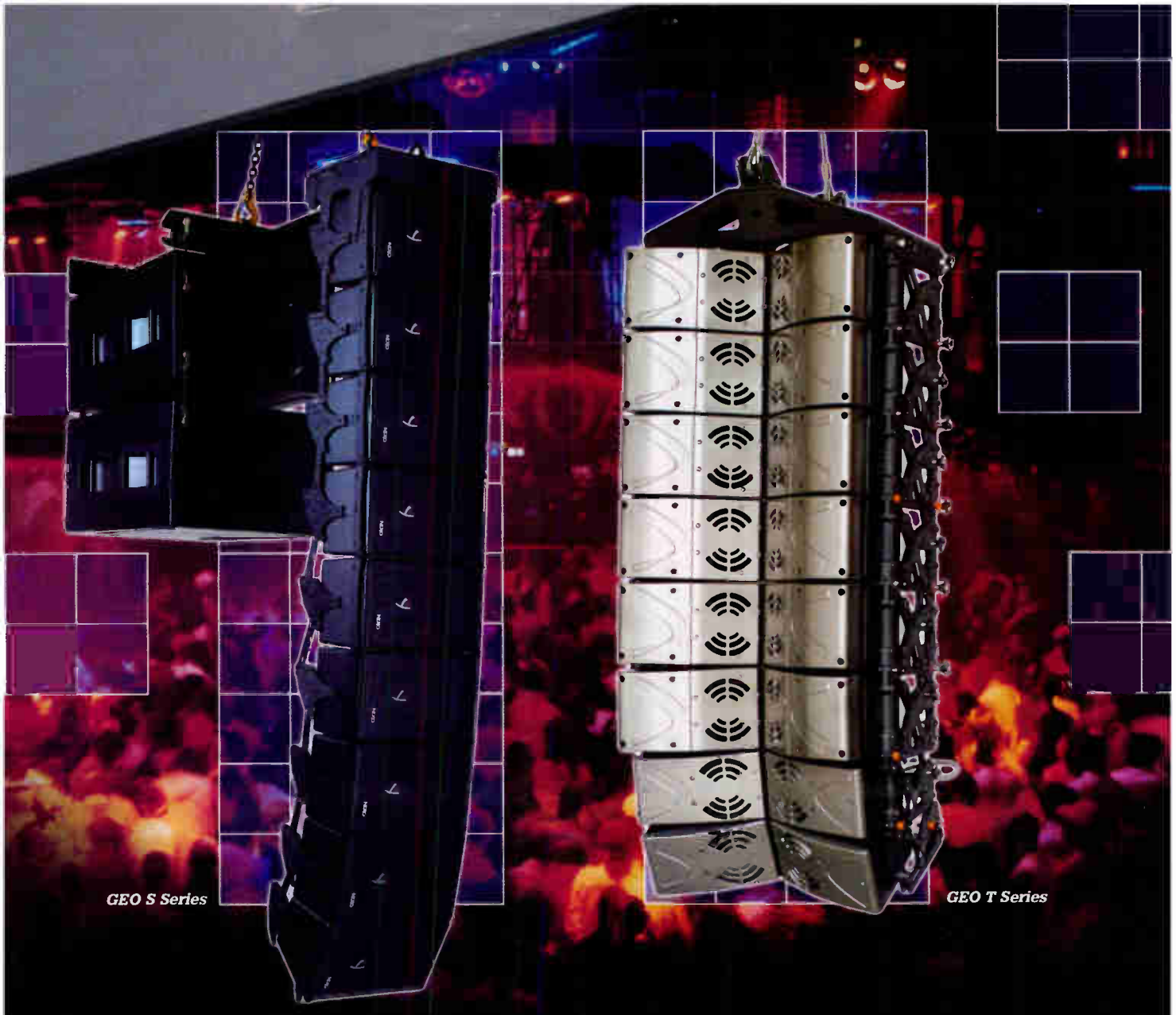
Midas XL4: Ten Years After

If only we aged this gr cefully! Ten years after its debut, and without di cernable design changes, the Midas XL4 is celebra ting a big anniversary. The analog console, designed by engineer Alex Cooper, was created to be "th definitive audio mixing console; bigger and bet er than anything previously designed, offering an in creased number of I/Os in a package that would h e equally at home working FOH or monitor duties," says Cooper. To get the highest audio quality possible, Cooper "revisited every part of Midas' e lectronic circuitry and made sonic improvements, m ost notably to the mic amplifier and EQ to ensure they could withstand overload without sounding ha rsh."

Midas sales and marketing director Dave Cooper (L) with Big Mick Hughes, Metallica's front-of-house engineer, in front of the XL4

According to Da ve Cooper, Midas sales and marketing director, "E ngineers love the warm analog sound of the desk's preamps, plus the immediate response of the onb oard EQ. Both features have become a benchmark in live mixing. Also, its control su rface has become a standard for engineers worldwide, [which] means anyone who's ev r used a Midas console can walk up and feel at home in front of it straight-away."

Artists who have recently toured with the board include Paul McCartney, Coldplay, Sarah McLachla n, Velvet Revolver, Metallica, R.E.M., Toby Keith, Jimmy Buffett, Santana, Bryan Adams Van Halen, Phil Collins and Hillary Duff.



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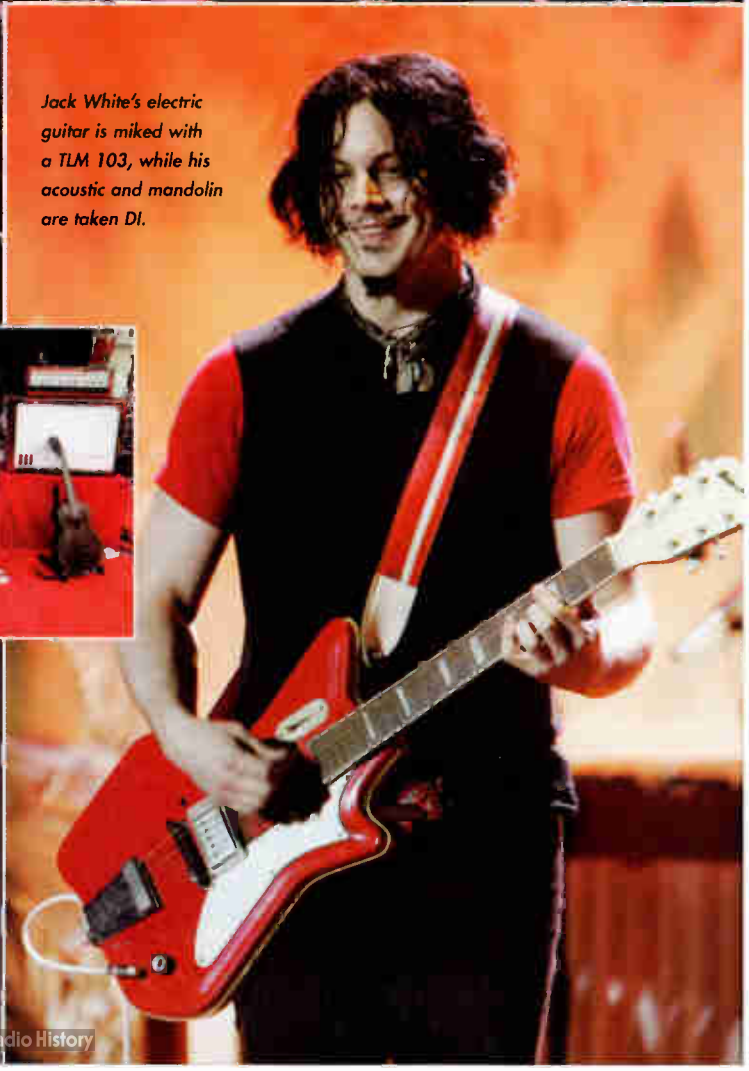
THE WHITE STRIPES

Text by Ryan Wilkins
Photos by Steve Jennings



Jack White's electric guitar is miked with a TLM 103, while his acoustic and mandolin are taken DI.

Early in the set, there's a moment when everything stops for the White Stripes. It lasts only a few seconds—so short that the audience (still reeling from the head-rattling opener "Blue Orchid") hardly notices the delay—but it's a key time for the show. Whereas most bands use this pause between songs for a breath, the two famous garage-rockers from Detroit are doing something different. Similar to jazz musicians or performance artists, Jack and Meg White are crafting the evening's set as they go. *Mix* caught up with the show at the Greek Theater in Berkeley, Calif., in mid-August.

Monitor engineer Neil Heal

MONITOR ENGINEER NEIL HEAL

Monitor engineer Neil Heal doesn't have as many challenges as his engineering counterpart on this tour, relying mostly on providing a loud and powerful mix to the band through wedges and sidefills. Even the presence of so many instruments onstage doesn't faze him. Everything—from a set of bongo drums to marimbos to two timpani—are carefully measured onto the stage by Heal and his crew before the show, allowing Jack and Meg White the freedom to choose what they want to play from song to song. Needless to say, because of these requirements, the White Stripes call for anything but a clean stage.

Asked why Heal monitors using a Midas 3000 console, the answer comes simply. "Because it's a Midas. It's the best."

Both pianos are taken DI; amps are BSS. When Jack White performs at the piano, he sings through a Sennheiser e935.

FRONT-OF-HOUSE ENGINEER MATTHEW KETTLE

One person who must contend with the ever-evolving set list is front-of-house engineer Matthew Kettle, who's been mixing for the duo since the 2001 White Blood Cells tour and recorded their recent studio effort, Get Behind Me Satan. "It's one of the aspects of the job I really enjoy," Kettle says of mixing sans set list. "It makes my job much more of a challenge, but it's exciting because I don't know what's going to happen next. Every day is a new challenge. It's fun."

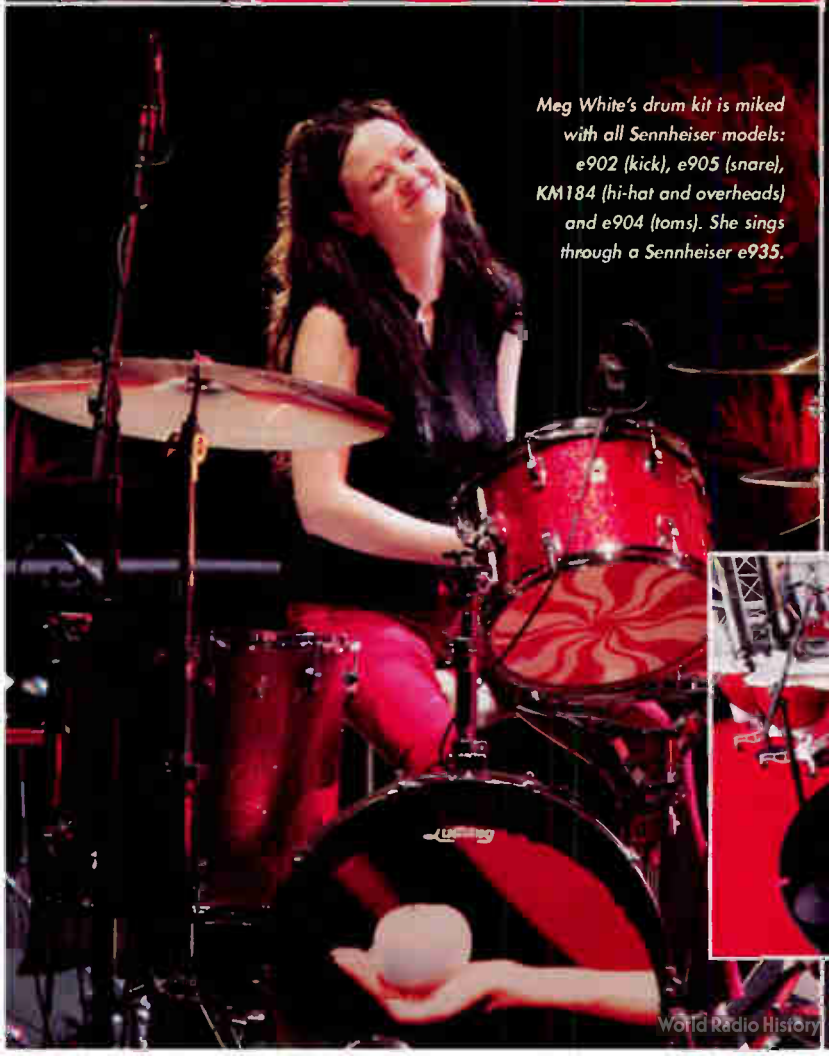
On his mixing toes each night, Kettle has opted to ride the faders with an analog board. "Part of the band's aesthetic is analog," says Kettle, who mixes on a Midas 3000, using 37 stage inputs and four audience mics. "That's the kind of technology they really feel [comfortable with]. But it's really a practical thing because the show is entirely improvised. It really helps when I can have everything available at one time; easy to reach. Also, it sounds great—you can't complain about the sound of a Midas console."

FOH engineer Matthew Kettle

Kettle's gear also includes a Meyer MILO P.A.—which is new to the Stripes' tour—and Nexo S2 subs. "The company we're hiring from [Thunder Audio] has traditionally been a Nexo company, but they're moving toward MILO," says Kettle. "We happened to be on a South American tour and the MILO system kept on popping up in really unexpected places like Guadalajara, Mexico. I got a lot of hands-on time with it and I liked it a lot.

"We've got a good stage set going," Kettle continues, "but I really had to change my approach to mixing because before, I could pretty much leave most things open. When you start muting things too much, you hear the natural ambience of the stage come and go, and that would be really noticeable and unpleasant. So I try to incorporate some of the natural ambience of the live sound of the band. But this year, it's much more complicated: We've got seven vocal mics onstage because Jack's playing all these instruments and can go to any of them at any time. I have to keep my eyes peeled.

"I treat the stage almost like a monitor engineer would. Based on where I see Jack move, I can open up or close those channels. The ambience thing hasn't been too much of a problem. It's a loud sound onstage and I definitely have to mix around it. That's their sound: It shouldn't be over-engineered, it should be raw."

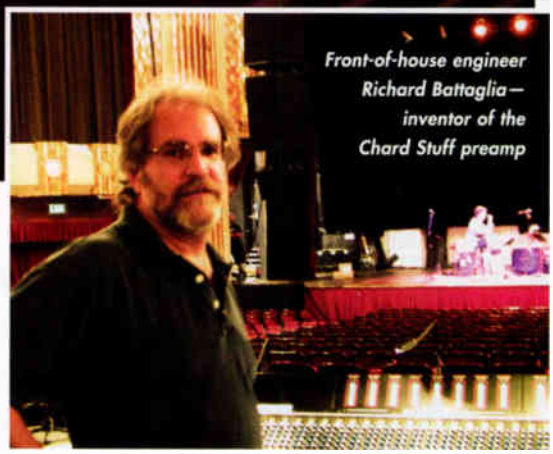


Meg White's drum kit is miked with all Sennheiser models: e902 (kick), e905 (snare), KM184 (hi-hat and overheads) and e904 (toms). She sings through a Sennheiser e935.

By Candace Horgan

TRIO! Sound

PHOTO: RICHARD BATTAGLIA



Front-of-house engineer Richard Battaglia—inventor of the Chard Stuff preamp

PHOTO: CANDACE HORGAN

Béla Fleck, Stanley Clarke and Jean-Luc Ponty Improv It Up

Béla Fleck doesn't seem to know how to rest. When The Flecktones, his normal touring band, decided to take a break in 2005, banjo-picker Fleck originally thought he would lay low and play a few shows with friend Edgar Meyer. Instead, he has spent much of the year touring with two different trios, which he refers to as Trio! and the Béla Fleck Acoustic Trio. The Acoustic Trio—which includes Fleck, fiddler Casey Driessen and guitarist Bryan Sutton—played several festivals, including the Telluride Bluegrass festival (Telluride, Colo.) and Rocky Grass (Lyons, Colo.). Trio!—Fleck, bassist Stanley Clarke and fiddler Jean-Luc Ponty—has spent much of the latter-half of the year on the road playing improvisational jazz that often features all three solo'ing simultaneously.

When Fleck looked at going on the road with Trio!, he quickly found support from Flecktones sound engineer Richard Battaglia. "I've been doing sound since I started playing music in 1968," says Battaglia. "I was a bass player and had a big bass amp, therefore the biggest car, so I had to carry the P.A., too. After I got out of college, I started working at a bar called the Down Yonder Saloon, and all these acoustic-style national acts like New Grass Revival came through. I became friends with them. In 1982, they needed a new sound person and I took on the job. Béla had been in New Grass for a year at that point. After New Grass Revival, I followed Béla through the weeds! New Grass Revival did their last show on December 31, 1989, opening for the Grateful Dead. About three months later, The Flecktones started touring and I went out with them."

On this tour, Trio! is keeping their road gear light. That means Battaglia is working with house consoles at every venue. "I usually ask for a Midas, but I don't always get it," he says. "I like most of the Midas boards. There are only 12 channels for this tour, so it's hard to ask for 56 when you aren't using them."

However, to keep some consistency in the sound, Battaglia carries his own effects. "I have a BSS DPR 404 4-channel compressor on the electric bass and the violin. I've also got a BBE 882 Sonic Maximizer, a TC Electronic Finalizer 96k across my left and right mains, and a Lexicon PCM 90 and 70 reverb. Here in Denver [where *Mix* caught up with the tour in mid-August], I'm only using the 90. I am also carrying an Avalon VT737 tube preamp/compressor EQ. I use it on Stanley's bass to make it more consistent; it will give me the same control every night.

"I also carry the Ashly Protea," he continues. "I have a little Palm Pilot that lets me EQ during soundcheck. I'm about to move up to the Lake Technology

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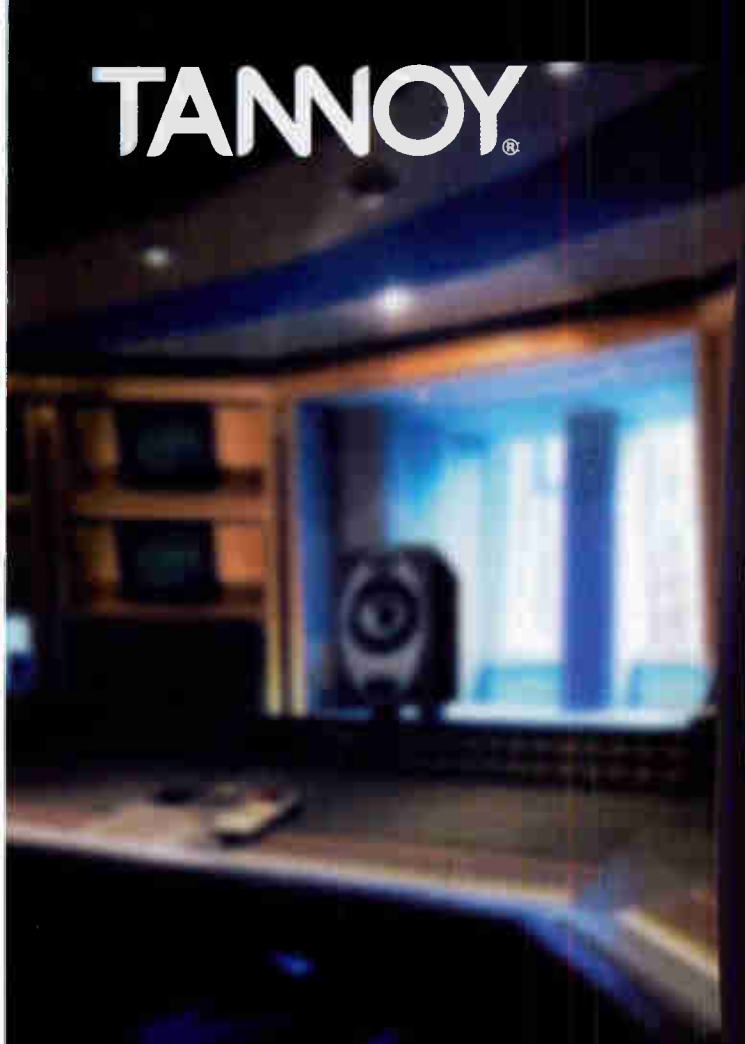

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system—a wireless PC tablet. I don't know if I will have it for this tour, but I'm hoping to have it by October. The Palm Pilot system is called Handycurve. It's a MIDI controller that controls the Ashly EQs. It gets wired into the Ashlys and I can walk around and EQ the room. The Lake system will let me do that during the show. That is another way I can be consistent since I use local P.A.s and boards."

Battaglia also likes to do a little analysis of the room and the P.A. "I use a program called SpectraFoo Complete. I use a Metric Halo Mobile I/O 2882 DSP for my interface via FireWire to my laptop, which runs SpectraFoo. I use it for a transfer function, and I can put meters on my solo output so I can see what each instrument looks like when I solo it. I use it every night—can't live without it—and since I'm a Mac guy, I'm proud to use SpectraFoo."

Although all the music is instrumental, each musician has a Shure SM58 to address the audience. Fleck has a Shure SM98 in the banjo and a Fishman Rare Earth pickup. He keeps a Klark-Teknik 10-band equalizer onstage and sends separate signals (mic and pickup) to Battaglia at front of house, which runs into a Chard Stuff preamp. (See sidebar.) Fleck also has an Eventide Eclipse multi-effects unit. Ponty uses an LR Baggs Para DI and a Lexicon MPX-550 reverb, while Clarke runs through an EBS MicroBass II preamp into an SWR Super Redhead amp.

Mixing Trio! is fairly simple, Battaglia says. "The biggest thing is to make Stanley happy. He likes to judge what is going on through the P.A. from the stage. That's the big trick. Stanley tells me on the mic what he is hearing and we go from there. After

PHOTO: CANDACE HORGAN

Monitor engineer Zach Newton was brought in from The Flecktones' camp.

10 shows, I figured out what he likes and doesn't like. He likes to hear real high end on the strings. The low end rumbles too much for him onstage, so he likes to hear string noise. I've been working with Béla so long, he just lets me go with it, and for Jean-Luc, we always check to make sure his violin isn't too piercing. It gets a little easier because it doesn't take over the whole P.A. the way the bass does. Otherwise, it's pretty simple. My goal is to make it sound as acoustic as it can with pickups."

For monitors, Trio! also borrowed from The Flecktones, choosing Zach Newton. "I started working at a small club for about a year, and from there moved on to FOH duties with Col. Bruce Hampton & The Aquarium Rescue Unit. After the first H.O.R.D.E. [Horizons of Rock Developing East Coast] tour, I began working with Béla. My respect and love for Béla run deep; I would find it difficult to pass up an opportunity to work with him. Throw in Stanley and Jean-Luc, and it was a no-brainer."

On this tour, all three musicians are using in-ear monitors. "Jean-Luc has a downstage wedge as well [he only uses one ear]," Newton says. "Béla is the only one getting a stereo mix, and he gets a straight-ahead mix with an image of the stage, violin left ear, bass in middle and banjo on the right. Stanley has almost no bass in his mono mix, with Jean-Luc and Béla in there at fairly even levels. Jean-Luc only uses one ear, and he has a lot of bass and a little banjo, with little to no violin.

"I am using the Shure PSM700 transmitters with Shure HW600s [hardwire] as backup. Béla and Jean-Luc use Sony earbuds and Stanley is using a pair of Bang & Olufsen A1 headphones. They are using consumer-type earbuds to allow for less isolation and more comfort. The 'cheap' headphone approach seems to help musicians that are wary about in-ears feel more comfortable." ■

Candace Horgan is a freelance writer based in Denver.

The Other Side of Life

Besides doing sound for The Flecktones, Robert Battaglia invented the Chard Stuff preamp, a unit that lets a musician blend signals from a mic mounted on the instrument and a pickup. The AcH 104 was developed during the New Grass Revival days. "Pat Flynn of New Grass Revival had this tiny little box that took a mic and pickup and split it," Battaglia says. "It was a simple box. That's where the idea started. After going through a lot of nightmares with little jumper cables and batteries falling apart, I decided I needed to come up with one box that did it all and made it foolproof. There is a guy in Nashville who did the electronic design after I gave him the concept. I still make them. Sam Bush, Emmylou Harris, Béla, Mark Schatz, Edgar Meyer and more use them. I've got about 85 of them out there." —*Candace Horgan*

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Where Functionality Meets Flexibility

By Sarah Benzuly

In today's slimmed-down, budget-conscious world, SR companies are looking for new ways to increase their profits. Regional companies are booking summer festivals, rodeos, monster truck pulls, etc. Live sound engineers—after weathering through a packed summer season—look to corporate events and smaller gigs to make the house payment. Even clubs that typically cater only to touring musicians are multitasking.

Set in the heart of downtown L.A., the 21,000-square-foot, more than 1,600-plus capacity Vanguard (www.vanguardla.com) has opened as an amalgamation of a live sound venue, a nightclub, a host to Sunday-morning church services and peripheral events, such as banquets, wedding services and award ceremonies. With such a diverse clientele coming in, the owners at Vanguard had to find an audio system that would be just as flexible as its clients.

THE PLAYERS

Owner/CEO Jordan Birnbaum—who works alongside partner Pasquale Rotella of Insomniac Events and general manager Misty Mansouri—was referred to Steve Leiberman of SJ Lighting (Chicago) by mutual friends; he was hired on as the designer for the club's lighting, sound and video systems. Apparently, Leiberman's reputation preceded him, as he had already designed numerous top-notch clubs around the country, including Crobar in New York and Chicago, Nocturnal in Miami and Ice in Las Vegas. Leiberman designed the hanging truss and lighting rig in Vanguard's main room, which also includes scenic-treated stone walls and a curved bar lit by high-tech LED fixtures. The club also sports a cherry-wood dancefloor, a large indoor balcony terrace overlooking the main room and an Asian-inspired outdoor patio, complete with fountains and a giant Buddha.

Leiberman contacted Sound Investment in Chicago, a company that he works closely with. As Sound Investment is in Chicago and Vanguard is in L.A., Leiberman handed the job out to Sound Investment's Adam Ward, who is based out of Las Vegas and heads up the company's West Coast office.

Ward went into the job expecting to install a small, budget-conscious sound system, as audio gear was not high on the owner's to-do list. However, when Ward had a look-see at the venue, he found that the size of the room would require the owner to upgrade the original audio spec and purchase a better sound system. "[The owners] had a price in their head, but once we went in there and talked to them," Ward recalls, "we advised that for what they wanted to do, they did need to spend more money and they realized that."

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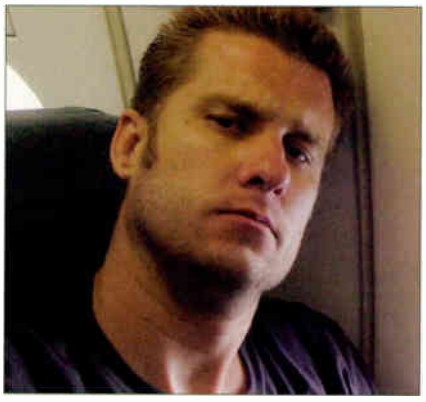
Ward concedes that the budget still did not have room for a $60,000—or even a $30,000—console. This may seem a bit detrimental to a club that is hoping to attract more live sound events—especially when many tours are not carrying full production and rely on a venue's in-house gear. However, Vanguard is banking on the appeal of the installed Funktion One sound system, which has seen its share of tours, but is being used as an install system at Vanguard. Sound Investment is a Funktion One dealer and so Ward's familiarity with the system—and



Sound Investment's Adam Ward

having previously installed it at the Ice club—came in quite handy.

According to Leiberman, who spec'd the sound system, "Support is always my main consideration—from the manufacturer and the installation company. Since I have close relationships with [Funktion One and Sound Investment], that helped close the deal. The marketing value of the speakers is tremendous. There is no other Funktion One system in Southern California that I know of, so I knew that would cause a buzz in the club community."

"The system is basically designed through digital processing," Ward says of the Funktion One. "It has the EQ and all the front-end gear [including compression/limiting and limiting for speaker protection], as well as built-in mixing capability [with a 12-channel mixer] inside the digital processing. So Vanguard doesn't right now need to have an outboard mixing console other than for the live sound events. You can take $20,000 worth of gear and they're in that 30 boxes." For these shows, touring acts can rent gear from L.A.-based sound companies. "Since most of the live events are special events," concurs Leiberman, "and there is going to be a rider provided by the band with equipment specifications, that comes in on a rental basis. We ran snakes and made accommodations for boards to come in."

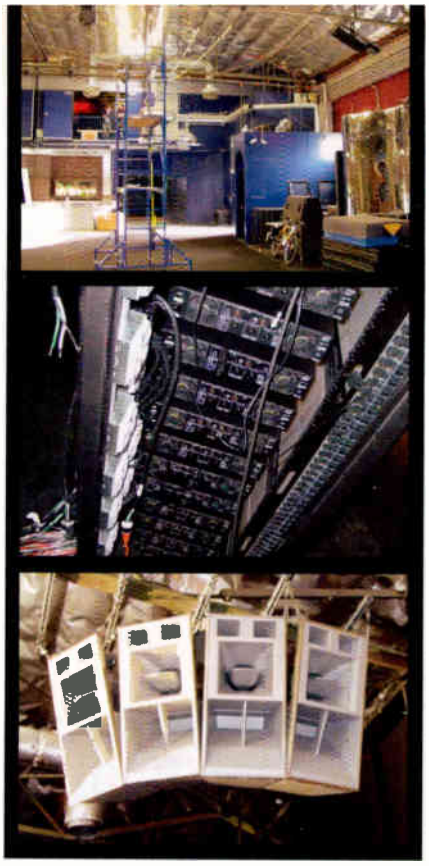
According to Ward, "We used the Res-5 system, which is Funktion One's flagship touring sound system, and with Vanguard having the opportunity to create that nightclub as one side and the live sound as another, we could really utilize Funktion One and what the speakers could do." During the install, Ward tuned the room with SIA Smaart, "and that allowed us to get the focus of the speakers where we wanted them." The system's flying system makes the speakers easy to hang, as there are no separate flying trunks or loose parts; all intercabinet flying hardware is built into the enclosure.

"Basically," Leiberman says, "we were told to accommodate for not only dance music, but for live sound. We set the system up a little heavier for the stage layout so it has four mid-high stage-left and four mid-high stage-right, and then there are bass cabinets on the floor; for rear-fill, we did 2x2. And then we have a bi-amp system so there are different program settings: If it's live sound, you go to the bi-amp system, change the setting, click it in, and it basically shuts off the rear-fill and then adjust the EQ to accommodate for a sound board and for somebody to come in and mix. And when you have electronic music or a DJ, there is the setting that is the four-point sound, which balances out the sound that way. Then there's also a banquet setting because we have fill for tables and things like that over the dancefloor."

BUT HOW DOES THE ROOM SOUND?

Similar to many recently opened venues, Vanguard has had many incarnations: It's been a warehouse, a roller skating rink and, most recently, Qtopia club. Acoustically, according to Ward, it is an interesting venue in that there are a lot of hard surfaces and, "there's nothing really there to absorb sound. But surprisingly enough, the room actually doesn't sound too bad—even with all of those hard surfaces in there." In fact, there was some concern that with the Funktion One install, they would be "rattling the place like a tin can." But Leiberman found that the installed Res-5 speakers are "like high-power accurate rifles: Where you aim it is where it goes. If you walk a few feet off the line of the speakers, it's relatively quiet. They just slice sound wherever you aim them."

"We did have issues with the neighbors," Ward says. "We have to keep an eye on the outside sound levels as far as what happens outside the building. One of the good things about the Funktion One system is that it is definitely a point-and-shoot system in that it is loudly pointed, and then away from that, it drops off in terms of SPL level.



From top: Installation of the lighting/sound system rigging begins; the Funktion One sound system's onboard digital processing; and the flown Funktion One system. Note the all-metal roof covering.

"We didn't put in any acoustical treatments," Ward continues. "We advised the owners on certain things that they should do that will make it sound better, but that will have to be down the road as far as budget allows. We advised on things like a large ducting right in front of the speaker locations. The ducting is all metal and that's pretty much right over the downstage edge. They should put some sound absorption in front of that and some over the stage, because right now, the roof is covered in a metal surface and you get a lot of reflection off of that. So we advised that they put baffles in the ceiling to soak up some of the extra sound."

And this advice is sure to be taken into consideration—and hopefully employed—by the venue's owners. "The club business is a crowded field," owner/CEO Bärnbaum told Los Angeles' *Citybeat* in early August, right after the venue opened, "but when you expand to rock shows, wrap parties, film premieres and special events, that's where there's room to have a different audience every day of the week. Then it's about focusing intently on the customer experience. I'm hoping we'll be different and bring a kindler, gentler vibe to the club scene in Hollywood." ■

Sarah Benzuly is Mix*'s managing editor.*

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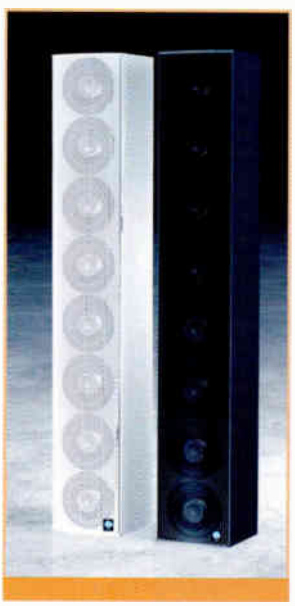
New Sound Reinforcement Products

EAW DIGITAL TOURING CONSOLE

The umx.96 from EAW (www.eaw.com) is a 24-bit, 96kHz digital live console with expandable 56x44 analog I/O and 3x12 integrated system processor—all for a projected list price of less than $50,000. The master section has a 15-inch touch-sensitive LCD with a dynamic rotary encoder that can change its "feel" depending on the selected parameter. The channel section has 48 P&G touch-sensitive faders in stacked rows of 24 for simultaneous control of all 48 input channels or assignment in master groups of eight to specific sections. The umx.96 is the first console to fully integrate all of SIA SmaartLive's measurement capabilities for instant system measurement and calibration. Additionally, onboard EQ, crossovers, filters and limiters allow loudspeaker alignment, audio distribution and zoning to be done directly from the mixer. EAW's revolutionary new Gunness Focusing™ technology will be incorporated through an optional processing card.

RENKUS-HEINZ ICONYX



The ICONYX Series of digitally controlled column loudspeakers from Renkus-Heinz (www.renkus-heinz.com) uses advanced technology to provide intelligible speech and musical sound in highly reverberant environments. Their slender "thin-stick" vertical profile mounts flat to the wall, blending easily with both classical and contemporary architecture. Systems are available in 8, 16, 24 and 32-channel sizes to suit different needs. All are constructed from the basic IC8 8-channel module to simplify shipping and transportation. Modules easily join in the field to form larger systems. Advanced DSP software and digital amplification enable the user to define the shape and aim of the vertical beam without moving the columns from their installed position.

ALLEN & HEATH ILIVE DIGITAL CONSOLE

New from Allen & Heath (www.ilive-digital.com) is the iLive digital console. The iDR-64 mix engine holds 8-channel cards for 64 inputs and 32 outputs, which can be groups, auxes, matrixes or mains, and can be used as a stand-alone mixer. Available control surfaces have 28, 36 or 44 faders, and house four additional cards for eight assignable and eight mix inserts. Custom-color backlit displays over each fader provide good visual cueing. The selected channel section has an analog feel and is placed at eye-level alongside an LCD touchscreen.

AVIOM PRO64 SERIES

Designed to solve audio distribution problems in a wide variety of contexts, Aviom (www.aviom.com) offers a line of second-generation A-Net Pro64 audio networking products. The products include the 6416i Analog Input Module, 6416m Mic Input Module, 6432dio Digital I/O Module, 6416o Output Module, 6488io Analog I/O Module and MH10 Merger Hub—all featuring variable sample rates up to 192 kHz, a high channel count, unlimited system expansion and cable runs of up to 500 feet.

GLYPH PERSONAL MONITOR

Glyph's (www.glyphtech.com) GPM-216 Personal Monitor is a 16-channel digital mixer with two local inputs split to feed a main mixer, while being digitally mixed over standard Cat-5 cable to other units for onstage or studio monitoring. It runs on Linux, and has a built-in reverb and instrument tuner. Rear connections include inserts for the two local inputs and the mix, plus speaker outputs. The two-rackspace front panel has a large LCD, bass/treble/volume controls and 16 illuminated channel-select buttons.

BY EDDIE CILETTI

Avoiding a Blue Holiday—Anytime

Tips for Computer Health and Your Sanity

The dreaded Windows Blue Screen of Death would definitely make you blue at this time of the year—or any other time. So for background music, think "Elvis" for this column.

During the coming weeks, months and possibly years, your computer will have become an extension of your personality and daily needs, and then—poof! Nothing is more exhausting than the thought of rebuilding the post-crash desktop. No matter which platform you call home—Mac or PC—there is a lot in common to "building" from scratch, preventing and recovering.

The most obvious difference between the two primary platforms is that the PC is a legacy system while Apple's periodic upgrades make older systems obsolete (but not unusable), yet frozen in time like Latin. In contrast, it is nearly impossible to fathom the variety of hardware combinations that a Microsoft Windows machine might encounter, and yet they too are functional. Both platforms, new and old, benefit from the Internet's vast library of drivers, both from manufacturers and third parties.

I'm a legacy dude, hanging on to hardware of all kinds and laughing at the ability to run 20-year-old DOS programs under Win2k and XP. I guess that makes me the exception around these parts, but it's not an issue of pro or con; both platforms work and both have their issues. The Windows/Intel PC is a wholly different animal from the Mac—and I totally get Apple's philosophy—and it's simply easier to embrace all that's technologically "new and better" rather than try to support old hardware and code. That said, both platforms are moving toward each other, if only to share in the affordable hardware, such as IDE hard drives and, now, Intel processors!

DEFENSIVE COMPUTING

I avoid making one system try to do everything. I have an office PC, a video PC and two different audio PCs: one hardware-specific and the other "native." My primary DAWs are Soundscape and Adobe Audition. My preferences, along with my approach to computer solutions, put me quite outside the norm. However, I am learning Pro Tools (on a Sony VAIO laptop) as part of my duties as an educator.

In my opinion, FireWire and USB are about the greatest advancements in computer hardware because they allow quick and easy hard drive swaps, minimizing many of the not-playing-well-with-others hardware conflicts that happened when everything was inside the box. That said, what follows assumes you're comfortable playing under the hood.

DAS BOOT

The typical computer has a boot drive on which the operating system and programs are installed. All of us who tinker with media files—audio and video—know that those files and their temp files do not belong on the OS drive but on dedicated drive(s). I take this one step further by installing programs on their own drive as a protective measure. It doesn't save you from reinstalling the program, but it may preserve user preferences and other program-specific info such as passwords and serial numbers.

Yes, for large system/facilities with dedicated support personnel, dedicated backup software is the way to go. That implies a dedicated file server, a RAID (Redundant Array of Independent Disks), scheduled backups and lots of drive space. While the option to back up only the modified files is available, I highly recommend full backups. (All will be explored in a future column.)

OLD BROWN SHOE

Often, the original boot drive might suffer from a corrupt OS, preventing the computer from booting. If so, start by removing the old boot drive. From here, you have two options: install the original boot drive onto

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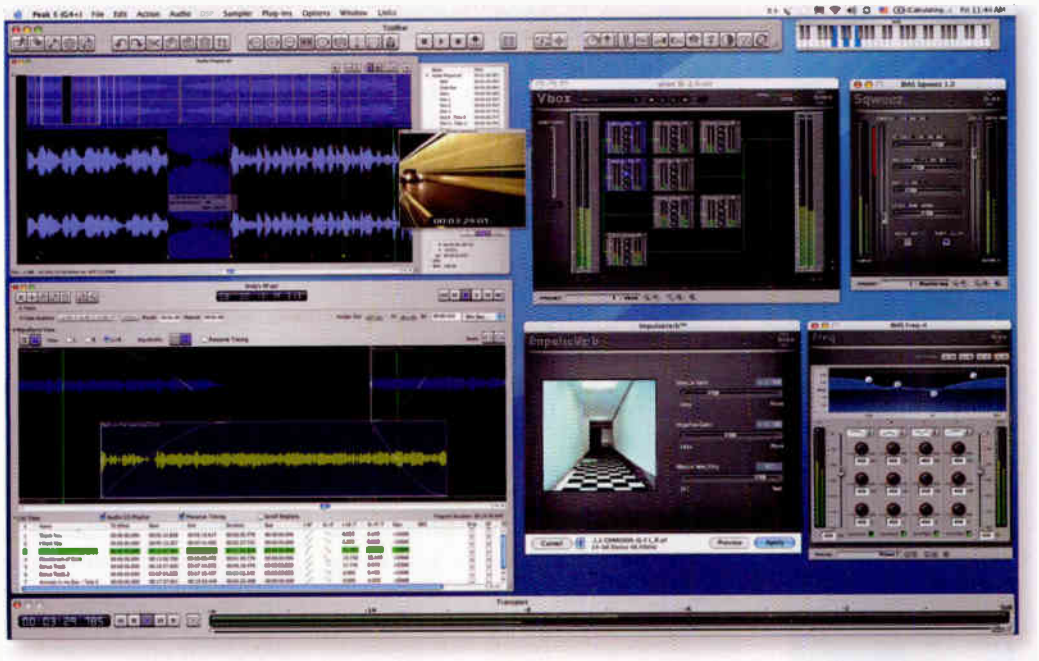

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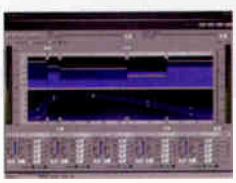

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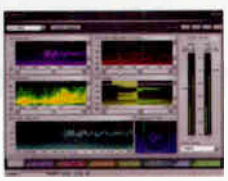

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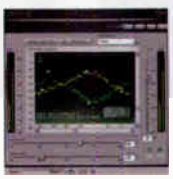

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an external FireWire or USB case and connect it to a functioning computer, or buy a new drive, install a new OS and then connect the old drive. (Scan the drive for viruses before copying.) In either case, you'll have more luck recovering data from the original boot drive as "just another drive" rather than trying to kick-start it with high-voltage pads.

For example, I was once given a dysfunctional laptop from which the user hoped to recover as much personal data as possible. The machine wouldn't even boot, so I removed the drive—a remarkably tedious process for a name-brand product. The 2.5-inch laptop drives (desktop drives are usually 3.5 inches) were installed into an external USB drive box. Things were not sounding too good (an obviously loose component), so I decided to void the drive's "warranty" by removing its cover. The offending piece was removed. (It was intended to stabilize and dampen head arm resonance.)

From this vantage point, I could see that the drive was spinning but the heads were not "playing the record." I don't know what possessed me to pull the USB plug—which was also supplying power—but reinserting the plug woke up the drive. It then appeared on my desktop and I immediately dragged the contents to one of my local drives with the cover off! Voila! Data saved! That drive was set aside and a new drive was installed. Please see "Windows OS From Scratch" for a step-by-step approach.

WHAT'S UP, DOS?

If you're wondering what might be distracting your PC from doing its job in a timely fashion, then click CTRL+ALT+DEL, which will access the Windows Task Manager. This utility has three tabs that detail performance (processor and memory usage), processes (as required by the OS and any other running program) and application status. An application that may appear to be "not responding" may actually be tied up in traffic; not responding does not necessarily mean crashed. One example occurs when an Internet connection is lost while one or more background programs were running and expecting a connection. Sometimes, it's better to go get a cup of coffee rather than end it all too quickly.

E-I, A-I, OH!

In the future, a basic form of artificial intelligence will monitor a machine's daily health and reduce the number and severity of fatal errors. It's the computer equivalent of building headroom into a system. Until then, back up often and be prepared by recycling your old computer into a viable recovery machine. ■

Eddie practices the unconventional at www.tangible-technology.com.

Windows OS From Scratch

I admit in advance that my approach is unusual if not obsessive, but it works. Proceed at your comfort level.

Before installing a new boot drive:

- Remove/disconnect all other hard drives. (Windows assigns the first drive it sees with the letter "c." You want that to be the boot drive.)
- Install new boot drive
- Power up, insert CD-ROM of OS and follow the installation procedure.
- Once the OS is installed, click on Windows update or go to Microsoft's Website to bring the OS up to date.
- Reconnect any internal or external drives and reassign the drives letters as per your preference.

I do not partition or compress data, nor do I install multiple operating systems on any one drive. Drive caddies—removable trays—are a more robust solution, in my opinion.

I prefer to name all of my drives—"Seadog," for example—using the first letter of the drive name as the logical drive letter—"s" in this case. My logic is that fixed drives—including CD/DVD drives—even if outside-the-box, are a normal part of day-to-day activities and should have drive letters that are away from the boot drive. That way, Windows will assign letters to any floating drives that do not change the "fixed" drive letters. Drive letters can be changed via the Control Panel's Administrative Tools. Click on Computer Management and then Disk Management. Once programs are installed on a separate drive, that device's assigned letter cannot change.

—Eddie Ciletti

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Series, is geared to be used with Waves' IR-1 and IR-L convolution reverbs and includes IRs from concert halls, cathedrals, monasteries and even the Great Pyramid at Giza. Both are available from www.acoustics.net. Price: $250 to $499.

OCTAVE SYSTEMS COPY MASTER II

Octave (www.octave.com) released a new line of Copy Master II Pro Robotic DVD/CD duplicators, all featuring high-quality Plextor PX-716A optical recorders, an auto-loading arm, easy-to-read LCD and a 160GB hard disk drive. The three models feature either four, six or seven optical recorders, and do not require a PC for operation. Depending on the user's needs, 4.7GB DVDs can be copied at up to 16x, 8.5GB dual-layered DVDs at up to 6x and CDs at up to 48x. Prices: $3,600 (4-drive), $4,600 (6-drive) and $5,100 (7-drive).

TRUE SYSTEMS P-SOLO

This new preamp from True Systems (dist. in the U.S. by Sennheiser, www.sennheiserusa.com) features military-grade, hand-matched components and the identical preamp design found in the True Precision 8 and P2 analog products. The P-Solo features balanced, dual-servo, high dynamic range, transformerless design, internal linear AC power supply, high-impedance instrument input, highpass filter, phantom power and dual analog outputs. Price: $749.99.

SOUNDELUX E47C

Re-creating the classic U47 mic, Soundelux (dist. by TransAudio Group, www.transaudiogroup.com) introduced the E47C ($4,250 list). Targeted for vocal use, the E47C offers the signature proximity effect that is characterized by 12 dB of boost at 100 Hz at a distance of 1 inch. The mic features a NOS Telefunken Large Plate EF814k tube, P99E power supply, custom 20-foot Soundelux cable and 47 suspension clamp–type shockmount with wood box.

RAIN RECORDING STORMDRIVE

Need fast and portable storage for audio? Then the StormDrive ($599) or StormDrive Pocket ($499) from Rain Recording (www.rainrecording.com) just might be the ticket. The fast and fanless drives feature one USB 2 and two FireWire ports with an IEEE-1394 repeater built into the FireWire ports for easy daisy-chaining. In addition, there is an 8MB buffer for increased sustained track count without the need for higher rpms and "plug-and-play" operation with instant OS recognition for PC and Mac. The StormDrive features a 3.5-inch, 7,200 rpm, 300GB Seagate drive with SoftSonic technology that eliminates the "whine" sound from the drive for virtually silent operation. The StormDrive Pocket features a 2.5-inch, 5,400 rpm, 100GB Seagate drive and measures a mere 5.25x3x0.75 (LxWxH) inches. The StormDrive Pocket can be bus-powered via FireWire and ships with a power adapter.

M-AUDIO JAMLAB

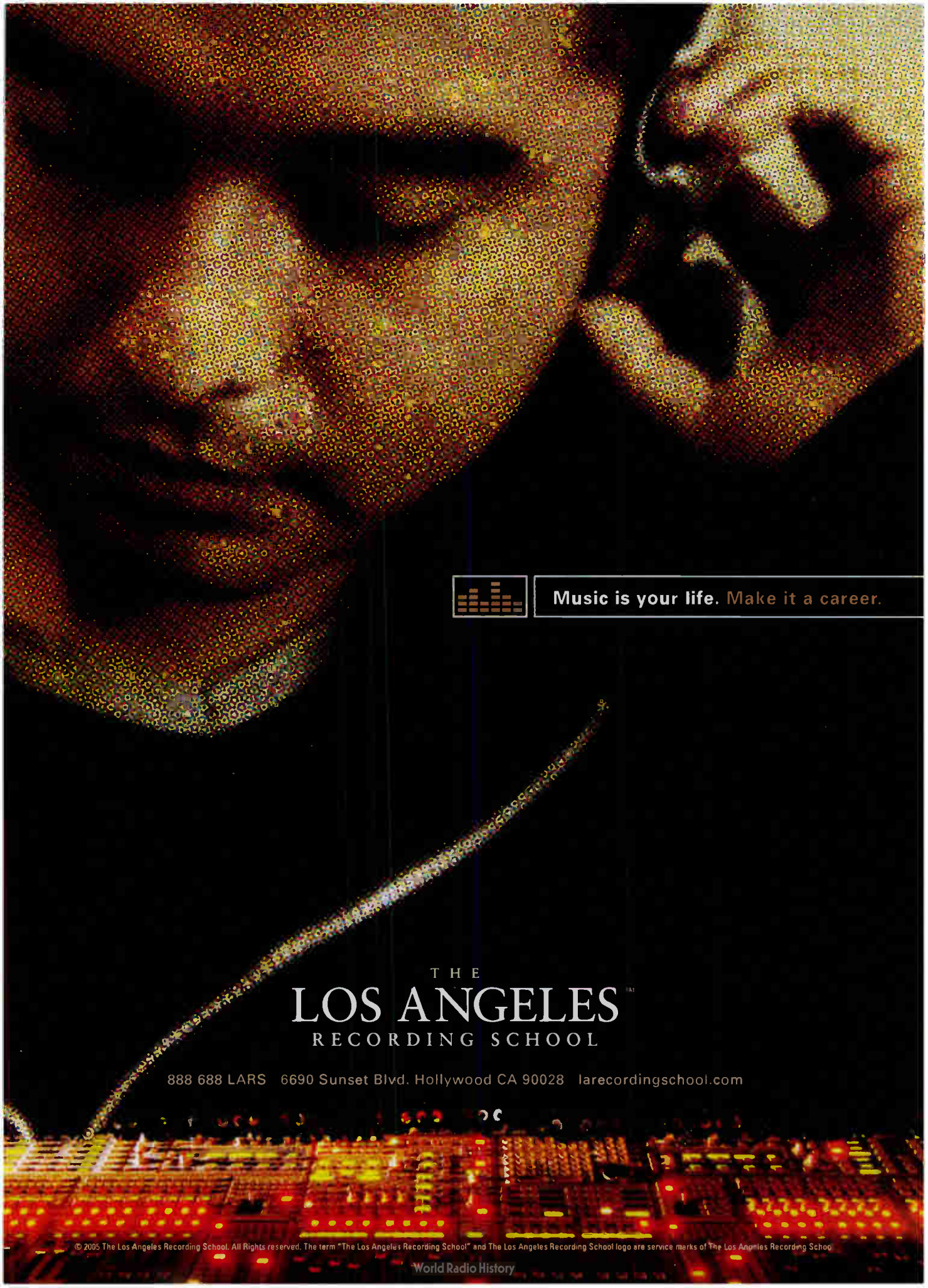
Specifically designed for I/O-seeking guitarists on the go, the JamLab ($79.95) from M-Audio (www.m-audio.com) is a USB interface for both Mac and PC platforms. The simple, low-profile box offers 24-bit fidelity at 44.1 or 48 kHz, and features DSound GT Player Express software that combines the functionality of a guitar amp, effects pedals and standard audio file player. I/O comprises a ¼-inch jack for guitar input and an ⅛-inch jack that can be used as either a line or headphone output for quiet late-night shredding. Volume control is handled using the JamLab driver control panel. The JamLab system also ships with 160 MB of .WAV drum loops from M-Audio's ProSessions Sound and Loops Library. The package can be used stand-alone or with most host software, and is compatible with Core Audio, WDM, ASIO 2, ReWire and VST plug-ins.

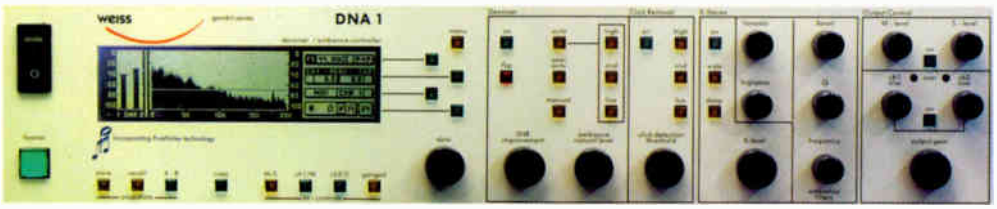
SOUNDFIELD ST350

Need to capture surround sound in the field but don't want to pack a ton of gear? Then you may want to look at the new portable ST350 ($5,900) microphone from SoundField (www.soundfieldusa.com). The AC- or battery-powered ST350 comprises a lightweight multi-capsule microphone and fully featured compact mic preamp/control unit that generates surround and stereo simultaneously at balanced line-levels. The mic is capable of driving long cable runs, enabling it to be positioned hundreds of yards away from its control unit or alternatively handheld on a short boom. Control unit features include high-performance mic pre's with discretely switched 6dB gain steps and five-segment LED bar graph for level monitoring. Polar pattern control is continuously variable from omni through figure-8, with a width control providing everything from mono to wide-image stereo. Other features include highpass filtering, switchable M/S output and headphone monitoring.

WEISS ENGINEERING DNA1

Those needing high-end audio restoration tools will want to take





a look at this 96kHz/24-bit audio restoration and enhancement processor from Weiss Engineering (dist. in the U.S. by LasVegasProAudio, www.lasvegasproaudio.com). The unit carries a noise-removal section followed by an ambience-recovering and gain control section. Features include a real-time simultaneous de-noiser, de-crackler and de-clicker, as well as the K-Stereo Ambience Processor. The de-noiser features three automatic modes, a manual mode and a semi-auto mode. The de-crackler provides three independent sub-systems—DeCrackle, DeClick and Smooth—while the ambience processor allows the operator to recover lost or amplify hidden ambience, space and imaging by extracting and processing original ambience information in post-production. Price: $8,900.

NEUROTONE LACE

NeuroTone (www.neurotone.com), in partnership with UCSF audiologists, has developed a personalized auditory training platform to address the need for measurable auditory training for tinnitus-stricken audio pros and musicians. The company's first product, LACE (Listening and Communication Enhancement, $149), is an interactive, computerized program (Mac and PC) designed to train the brain to use skills to improve communication. Just as physical therapy can help rebuild muscles and adjust movements to compensate for physical weakness or injury, LACE is said to assist in developing listening and communication skills and strategies that can help compensate for those situations when hearing is inadequate.

NEVE 88D DIGITAL CONSOLE

Hot from the show floor at AES, Neve's (www.ams-neve.com) newest digital console is the 88D. The new desk offers 1,000 tracks at 96 kHz, classic Neve preamps, dedicated 8.1 surround monitoring of multiple sources and the latest version of the Encore Plus automation. Integration of Pro Tools and Nuendo is a snap via the HUI protocol, as is Pyramix via Oasis. Also featured are Neve's EQ and dynamics plug-ins, as well as DXD mixing and 40-bit, floating-point processing.

Upgrades and Updates

Microboards (www.microboards.com) **is shipping the Print & Burn DVD/CD duplicator**, which features a high-speed DVD/CD recorder and industrial printing technology from HP to give users professional publishing in a petite package...**The latest version of Pyro** from **Cakewalk** (www.cakewalk.com) adds ring tone creation and delivery, disc-burning enhancements, improved audio editing, enhanced support for portable players and more...**Native Instruments** (www.native-instruments.com) has released a **free 1.08 patch update for all products that use the KOMPAKT interface.** New features include RTAS multiple output support, improved RTAS performance, smarter overload detection and various bug fixes...**MOTU's** (www.motu.com) **Symphonic Instrument** universal orchestral plug-in is **now shipping for Mac and Windows.** It features an 8GB sound library, 500 instrument presets, 200 multi-instrument ensembles, 26 built-in convolution reverbs and additional new features...**IK Multimedia** (www.ikmultimedia.com) **has shipped the Miroslav Philharmonik**, a powerful integrated orchestral workstation combining the Miroslav Orchestral and Choir samples with a dedicated plug-in instrument tailored for everything from classical compositions to pop arrangements, film scoring and more...**SoundToys Inc.** announced the availability of **96k support for its EchoBoy** echo and delay plug-in. It is available free of charge to existing EchoBoy users, and supports both TDM and RTAS formats, as well as HTDM. A free 14-day production-ready trial version and upgrade for registered users are available for download at www.soundtoys.com...**Spectrasonics** (www.spectrasonics.net) released new **AudioUnits updates of Trilogy, Atmosphere and Classic Stylus.** The AudioUnits

updates add compatibility for Apple OS 10.4 (Tiger) and AudioUnits validation for Apple Logic 7 and fixes for MOTU Digital Performer 4.52...**TC-Helicon** announced **free downloadable software editors for current and new VoiceWorks, VoiceLive, VoiceOne 2 and VoicePro customers.** The Mac/PC editors, designed by PSI Craft, can be loaded as VST plug-ins or as stand-alone applications. The editors require a MIDI device to communicate with TC-Helicon products and feature full control over all parameters, as well as preset/song management. Users can download the editors from www.tc-helicon.com/editors...**Steinberg's** (www.steinberg.net) **Cubase SX/SL 3.1 update** offers more than 50 new features. The updated software features integration of external hardware instruments and effects, including Studio Connections Audio integration, support for Steinberg's Dolby Digital and DTS Encoders, and expanded editing and mixing functions...**Cycling '74** (www.cycling74.com) has a pair of upgrades: **Jitter 1.5**, featuring dramatic performance improvements, and **Max/MSP 4.5.5**, a free update for Max/MSP 4.5. ■

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BY MICHAEL COOPER

Rupert Neve Designs 5012 Duo Mic Preamp

Two-Channel Unit With a Split Personality

The 5012 Duo Mic Pre belongs to Rupert Neve Designs' new line of affordable, all-analog signal processors dubbed The Portico Series. Products in the series are designed to work either independently or be interconnected to form a larger system.

The dual-channel, solid-state 5012 features Mr. Rupert Neve's new input and output transformers and a decidedly split personality. A defeatable Silk circuit, when activated, transforms the otherwise modern-sounding 5012 into a preamp with a classic sonic signature. And both timbres—modern and classic—sound great.

RACK 'EM UP

The 5012 is a 1U, half-rack-size module with integral rubber feet for tabletop placement. Alternatively, single units or pairs can be rackmounted using an optional kit. Multiple units can purportedly be powered from a car battery without degrading performance.

Aside from a switch that activates Silk circuitry for both channels at once, all front panel controls, meters and indicators are duplicated on each independent channel. A rotary switch provides 0 to 66 dB of mic gain in 6dB steps. A continuously variable rotary trim control gives up to 6 dB of gain boost or cut for fine adjustments or riding gain. A highpass filter switch kicks in a 12dB-per-octave filter, the corner frequency for which can be continuously adjusted from 20 to 250 Hz with another rotary control. Other front panel switches include those for +48V phantom power, polarity reversal, muting the main outputs and sending signal to bus outputs. Eight-segment, multicolored LED ladders provide output metering for each channel.

All I/Os are on the rear panel. Mic inputs and main outputs are on balanced XLRs. Each channel also sports two unbalanced, high-impedance bus outputs on ¼-inch phone jacks. As more Portico Series products are released, users can connect them together via bus I/O jacks in various configurations to build an expandable, modular recording and mixing system. The two bus jacks for each channel are normaled together, allowing one to be used as an input and the other as an output so that multiple units may be daisy-chained (for busing several tracks to a common compressor, for example). Rounding out the rear panel are a power switch and a DC input jack for the external power adaptor.

The 5012's specs are great. The main outputs' frequency response is down only 3 dB at 160 kHz. Equivalent input noise is stated to be a quiet -128 dBu. Interchannel crosstalk is better than -90 dB at 15 kHz. Maximum output level is +25 dBu. The 5012 can take +26dBu input level at unity gain without a pad, inviting use as a line-level signal processor.

GOT SILK?

Recording a mellow electric guitar solo with a Royer R-121 ribbon mic and the 5012, the sound was very accurate but a little too clinical with the Silk circuit switched out. Switching in Silk provided a striking change in character, broadening the midrange frequencies, softening highs and adding a hefty helping of pleasing harmonics. The result was a lush, warm, golden tone that sounded downright phenomenal. I also used the 5012 as a line device to warm up a previously recorded electric guitar track that was edgy and thin-sounding. The Silk setting smoothed glassy highs and added pleasing girth to the track. Nice!

Some tracks sounded best with Silk switched out. A strummed Taylor XXX-MS acoustic guitar (miked with a spaced pair of B&K 4011s) on a country production called for a pristine recording. With Silk switched out, the stereo track had a wonderfully detailed top, clear mids and a tight bottom. Depth, nuance and stereo spread were outstanding. In a subsequent A/B test pitting the 5012 against my Millennia HV-3D—recording a Santa Cruz Orchestra Model acoustic guitar with B&K 4011s—the Millennia sounded yet a little more sparkly and open, providing a slightly more balanced tone overall. But the 5012 still sounded fantastic.

I also generally preferred to have Silk switched out when recording lead and background vocal tracks on country and pop productions. Silk produced a meaty, rich sound, but switching it out lent greater clarity, depth and detail to vocal tracks. While Silk sounded cool when tracking grittier rock vocals, the additional harmonic distortion that was produced would sometimes become overbearing at mixdown after additional compression was applied to the track.

Because the 5012 lacks DI inputs, I recorded an electric bass by going into an Aguilar DB 900 DI box before adding the 5012. I liked both 5012 settings—Silk switched in and out—equally well for this application. Silk provided a more pillowy and velvety tone, while disabling Silk lent greater depth and detail and a "drier," yet still very big sound. It was great to have two distinctly different timbres from which to choose.

FEATURES + PRICE = BARGAIN

My complaints about the 5012 are very few. The meters are difficult to read when not viewed at eye level, there is no front panel power indicator and I wish that Silk could be independently engaged for each channel. However, the differences in tone that are provided when toggling Silk in and out of circuit are quite dramatic and double the usefulness of this very flattering preamp. At $1,795 list, the 5012 Duo Mic Pre is a bargain.

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

Mix contributing editor Michael Cooper is the owner of Michael Cooper Recording, located in beautiful Sisters, Ore.

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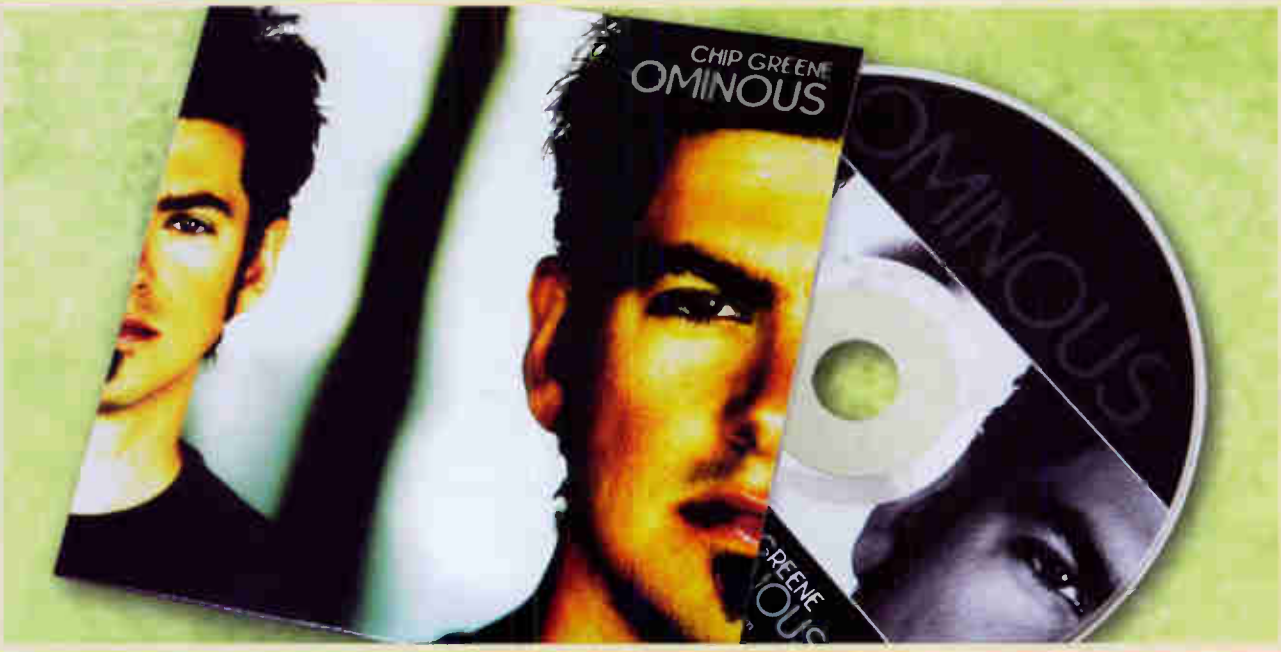

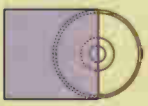

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BY MICHAEL COOPER

M&K MPS-1611P Powered Monitor

Affordable Two-Way With a Small Footprint

I've heard many two-way monitors during the years that delivered on the promise of deep bass extension; however, all but a few did so at the expense of other aspects, creating flabby bass and somewhat murky low-midrange reproduction. Those experiences led me to wonder whether, in the absence of onboard DSP or an added subwoofer, you really need three- or four-way sealed monitors to achieve transparent full-bandwidth monitoring.

But that was before I heard the M&K (Miller & Kreisel) MPS-1611P powered monitor. It offers deep bass, yet is one of the most revealing two-way monitors I've auditioned.

CLOSE TO YOU

The 20-pound MPS-1611P measures 12.625x8.375x12.125 inches (HxWxD) and is suitable for near- or mid-field use in stereo or multichannel setups, with or without a subwoofer. Two onboard amplifiers power the monitor: a 100-watt amp for the 6.5-inch, magnetically shielded polypropylene woofer and a 50W amp for the 1-inch, ferrofluid-cooled fabric-dome tweeter. An LED on the monitor's front face lights when the power is on and appears brightest to the user when the cabinet is aligned properly with his/her ears along both vertical and horizontal axes—a nice feature. The MPS-1611P is designed to be vertically oriented (with the tweeter above the woofer), but can also be used with horizontal mounting. Radiused front cabinet edges and a bezelled tweeter faceplate minimize diffractive effects.

On the rear panel, an XLR/TRS phone combo jack and RCA jack provide alternative choices for audio input. A three-way input-sensitivity switch provides two different fixed settings and one variable setting. The latter activates a continuously variable rotary control that adjusts the monitor's sensitivity over a ±6dB range.

Three rear panel features tailor the MPS-1611P's bass response for use with and without a subwoofer. A bass response switch, when activated, attenuates low frequencies when the monitor is being used with a subwoofer, and an 80Hz highpass filter switch is useful when the subwoofer doesn't provide bass management. The tapered bass port on the MDF cabinet's rear baffle has a removable plug. With the plug in place, the MPS-1611P becomes a sealed-cabinet design, producing less-prominent but tighter bass. Depending on the combination of filter switch settings used and whether the port plug is inserted or not, the MPS-1611P's 6dB down point at the bottom end is between 50 and 80 Hz, with the response extending to 22 kHz, ±3 dB.

A hinged clamp swings into place on the rear panel to keep the detachable AC cord from being inadvertently yanked out—yet another nice feature. A power switch (and associated LED), slow-blow fuse and large heatsink finish off the rear panel.

MONITORING THE SITUATION

I used a stereo pair of MPS-1611Ps to edit and mix tracks in my control room and listened to a variety of completed pop and country mixes, including my own, of which I was intimately familiar. First, I listened to the monitors alone (without a subwoofer), with all filters switched out and the port plugs removed for the widest frequency response.

With 70- to 75dB SPL (A-weighted) listening levels at the mix position, the monitors exhibited articulate high-frequency detail, crystal-clear midrange and surprisingly extended bass. Even low notes played on a Chapman Stick were clearly audible, if somewhat understated. The bass was a tad flabby, but not nearly as much as with other ported monitors I've used. Imaging and transient response were outstanding, and depth (imaging behind the speakers) was astounding. Listening at 80dB SPL and higher levels, the MPS-1611Ps sounded a little bright in the low highs.

Inserting the port plugs made bass reproduction immaculately tight but less prominent. Going a bit further, I switched in the monitors' bass response switches and then the highpass filters. Each progressively band-limited setup yielded a useful reference for checking the current mix.

Adding my Tannoy PS-88 subwoofer (a discontinued model) to the setup, I got pretty good results switching all of the MPS-1611Ps' filters in and inserting the port plugs. This yielded the highest bass roll-off (6 dB down at 80 Hz) for the MPS-1611Ps. But because my sub's inherent response is only down 3 dB at 110 Hz, there was too much mid-bass overlap for a seamless integration of sub and MPS-1611P satellites.

I got much better—make that great—results by setting up the MPS-1611Ps for the most extended bass response (filters switched out and port plug removed) and turning up my sub just enough to be a little more than barely audible. This just points out how flexible the MPS-1611P is in integrating into various setups. About the only thing missing in the MPS-1611P's feature set is a high-frequency tilt switch, which would be useful in heavily damped (e.g., carpeted) control rooms. Aside from an occasional quiet click on powering down, the MPS-1611P's switches didn't cause any electrical noise when moved.

CONCLUSIONS

The MPS-1611P sounds best at low SPLs (which is how I prefer to mix 97 percent of the time) and is one of the most revealing monitors I've ever heard. Considering the MPS-1611P's moderate price ($1,199 each), modest footprint and full-bandwidth response, it would be my first choice if space constraints meant I could have only one pair of monitors and no additional references (including no sub). Simply put, the MPS-1611P sounds superb.

Miller & Kreisel Professional, 818/701-7010 x124, www.mkprofessional.com. ■

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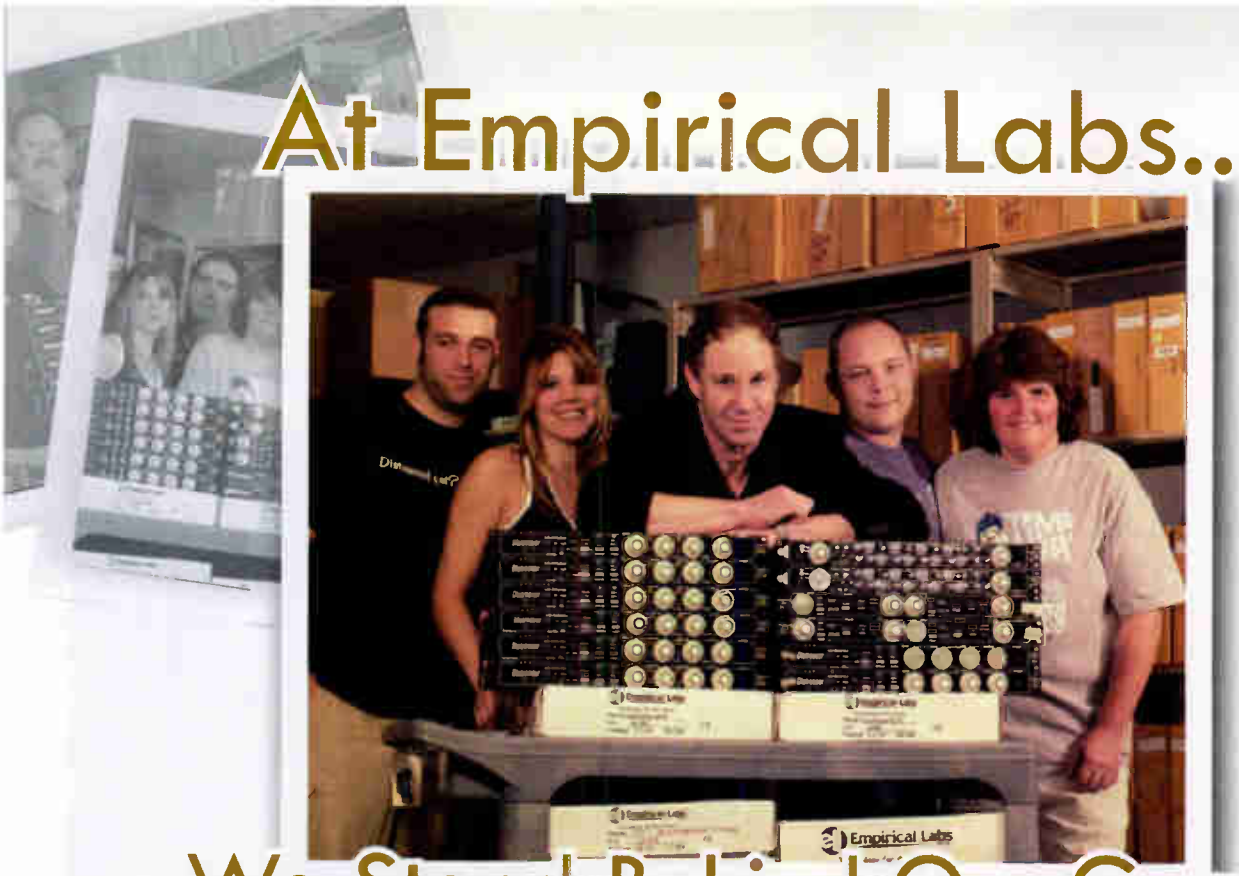

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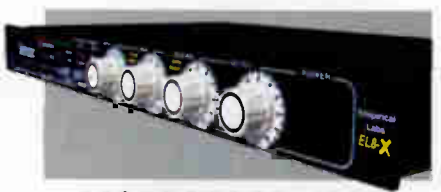

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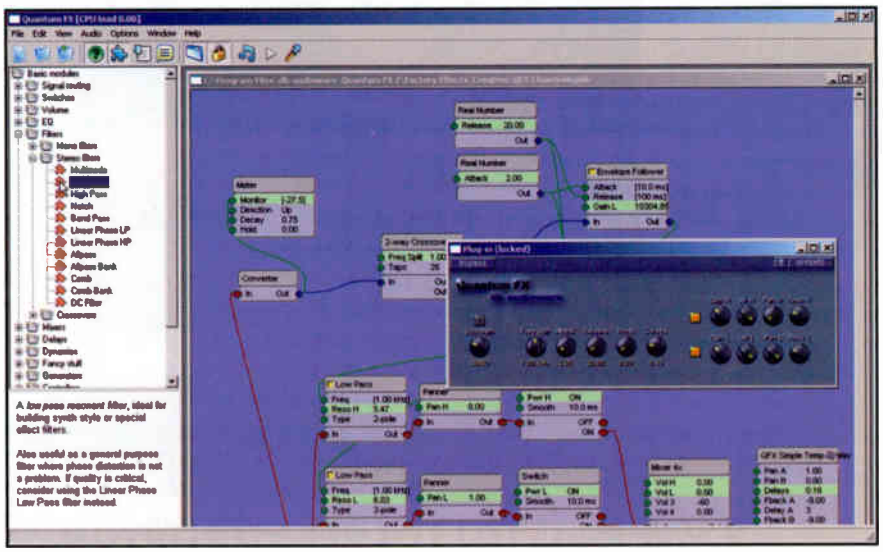
BY JIM AIKIN

db audioware Quantum FX Version 2

DAW-Enhancing Multi-Effects Plug-In Toolbox

Creative effects processing is the lifeblood of pop music mixes. Doubtless your DAW provides basic tools for sonic mangling, but what if you need more? Drop $299 on a multi-filter plug-in and $199 on an amp simulator, and before long, your effects rack will cost more than your computer.

db audioware's Quantum FX ($299) is a one-stop solution, providing not only a large, wide-ranging and good-sounding suite of effects, but also an open-ended modular design system where you can patch up your own visionary effects or modify the factory algorithms as needed. This elegant Mac/Windows program installs a set of more than 50 plug-ins, ranging from basic EQ and reverb to resonant delays and beat slicers with their own step sequencers. Also installed is a D.I.Y. programming environment called Workbench. The plug-ins you create in Workbench can be used in any VST/AudioUnits host.



The Quantum FX Chainsaw plug-in (foreground) loaded into Workbench for editing. Parameters highlighted in green are assigned to panel controls.

THE RACK

The supplied Quantum FX effects are in folders called Amplifier (five types), Chorus (six types, including two flangers), Creative (eight effects, such as Trance Gate, Beatslicer and Ambient Pads), Delay (six), Distortion (two), Dynamics (five, including multiband compression and sidechain compression), EQ (six), Filter (six), Mastering (five), Premium Effects (two), Reverb (three), Vocal (three) and Volume (two). Some of them are simple and DSP-efficient; others, such as Aura in the Premium Effects folder, include distortion, 3-band EQ and a one-knob reverb, making them somewhat CPU-hungry.

To avoid cluttering up your DAW's plug-ins menu, you can painlessly install or uninstall individual effects between sessions as needed. Each effect can store and load its own presets, and each comes with a pop-up Help window, whose text you can edit in Workbench to add reminders or tips. New in Version 2 is a standard MIDI Learn command for mapping panel controls to MIDI messages.

Quantum FX's Beatslicer

With so many effects to choose from, I was at a loss as to what to try first, so I loaded a simple MIDI-based beat into Ableton Live and processed various drum sounds through different effects. The cute but blippy electronic beat quickly took on a shimmering 3-D quality, which you can hear at www.mixonline.com in QFX1 Dry, MP3 and QFX1 Wet.MP3 formats.

INTENTLY LISTENING

I was a bit disappointed in Quantum FX's reverbs. The Roomverb effect is adequate, but not truly spacious. Inspecting the algorithm in Workbench, I found that Roomverb is a mono reverb that fakes stereo by delaying the right output slightly and inverting its phase. Enhancing it by adding more comb and allpass filters is quite feasible, but fiddly and time-consuming.

Quantum FX is capable of true sidechain operation, as seen in the ChainSaw module. I loaded one instance of this into a drum track and another into a pad track, and set the first for send and the second for receive. The pad pulsed in a hypnotic rhythm, and the effect gave me attack and release knobs, a quick way to stereo-ize the output and more. You can hear this at www.mixonline.com, as well.

I tried running a mix of one of my recent synth/cello compositions through the Quantum FX 3-band compressor and found that it added some presence, as expected. Each band has its own threshold, ratio, attack, release and boost controls, plus a Solo button. The crossover frequencies between bands are adjustable, so the plug-in can sound subtle or drastic. However, A/B'ing the dry signal with the

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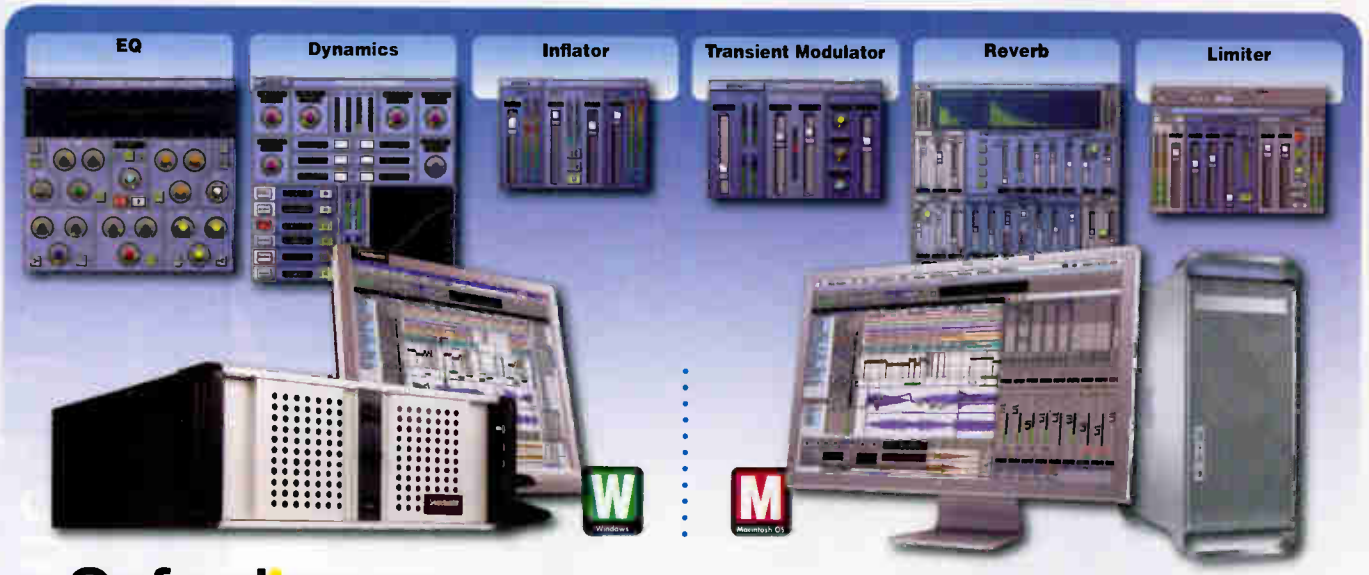

Oxford Plugins

Sony absolutely redefined the world of professional music production with the Oxford OXFR3 digital console. Known for its surgical precision, pristine sound and musical character, the OXFR3 quickly became the console of choice for many of the biggest names in the business.

The Sony Oxford Series of Pro Tools plug-ins delivers the essence of that million-dollar console to your desktop. No mere emulations, the EQ and Dynamics plug-ins use the same DSP code developed for the original OXFR3, while the rest of the Oxford line was developed by the Oxford team to provide astounding control over every aspect of your audio productions.

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SONY

BY TONY NUNES

Joemeek oneQ Channel Strip

Single-Channel Preamp/Compressor/EQ With Digital Output

Joemeek's new "Q" channel strip series maintains that classic Joemeek '60s midrange boost and presence, while better integrating into today's modern analog/digital studios. Upgrades such as a Burr Brown mic amp with transformer coupling, optical compressor, a toroidal power supply and digital outputs are a few of the improvements.

The next generation of Meeks includes the threeQ, sixQ, twinQ and the oneQ (reviewed here). Out of the bunch, the twinQ is the only dual-channel unit, but the oneQ adds an enhancer and de-esser, making it the line's most full-featured processor.

GETTING IN AND OUT

The rear of the unit is loaded with options. Under Channel 1 are two inputs: a 1.2k-ohm XLR mic input and a dedicated ¼-inch TRS line input. Analog outputs are simultaneously fed through a standard XLR or ¼-inch TRS jack. The ¼-inch is switchable between +4dBu or -10dBv levels. There is also an unbalanced TRS insert (pre-compressor/EQ).

The digital interface includes BNC word clock inputs and outputs. An XLR provides AES3 digital protocol, while S/PDIF format is delivered through optical or RCA connections. All standard sampling rates of 44.1 to 96 kHz (16- or 24-bit) are supported via rear panel switches. A front panel switch would have been more user-friendly.

TAKE ONE

During tracking sessions, setting the oneQ's levels was a breeze with the large VU meter, which multitasks for mic pre, gain reduction and channel output levels. There is an ancillary XLR mic input on the front and a ¼-inch instrument input for DI access. The mic pre section has switches and LEDs for all anticipated controls, including 48V, 20dB pad, line input selection, polarity reversal and an 80Hz highpass filter. There is also an Iron switch that introduces a transformer into the mic circuit.

My tracking session featured an AEA R84 ribbon mic on an acoustic guitar. I found myself cranking the gain about 55 to 60 dB for proper levels, inducing some unwanted noise. The results were good but not very inspiring. In a drum session, I placed a RØDE NTK about 18 inches outside the kick, and the oneQ shined. I used the transformer in the circuit, giving me a well-defined, full kick sound. Later, the oneQ was combined with a Neumann TLM 127 to capture a tuba. In this application, the Iron switch made all the difference, giving the tuba a nice, low midrange tone and robust presence.

On aggressive rock vocals, I used a large tube condenser mic and achieved good results. The oneQ produced plenty of high midrange and maintained dynamic control with the optical compressor (4:1 ratio with 6 dB of gain reduction). The Iron setting again made a huge difference, adding more body and presence to the vocal. Quite frankly, the Iron remained in the circuit from here on out. The oneQ also excelled as a bass DI. I plugged straight into the front, used a little compression, ran through the Meequalizer EQ (+3 dB @ 80 Hz) and had a nice, thick tone for the song.

DYNAMICS

For dynamics, the oneQ features an optical compressor, EQ (Meequalizer), enhancer and a de-esser. The optical compressor features compress (threshold), slope (ratio), attack, release and makeup gain controls. It can be switched either pre- or post-EQ. During some pop rock mix sessions, the combination of the optical compressor and the Meequalizer gave uninspiring bass DI tracks new life. On bass, the enhancer added character to the upper harmonics.

The Meequalizer is a 4-band peaking EQ. High and low frequencies are selectable between 7 kHz/14 kHz and 80 Hz/120 Hz, respectively, while the HMF and LMF are sweepable. All four bands allow a boost or cut of 15 dB and have a Q value of 0.9 (1.6 octaves). While cutting and mixing electric rhythm guitars, a 4dB boost at 7 kHz nicely accentuated the pick action and tucked the Les Paul properly into the overall mix.

SUMMED UP

Distributor PMI's upgrades to the line pay off. The only issue I had was not having enough gain with a ribbon mic during a tracking session. The mic pre was clean, and with the transformer, it had a lot of personality. While mixing guitars and bass, I found myself experimenting with the Meequalizer with good musical results.

The optical compressor could be both traditional and very expressive. Throw in every digital and analog I/O, word clock capabilities, a good pre, dynamics galore and an attractively revamped front panel interface, and the oneQ is definitely a full-featured channel strip. With a list price of only $799, the oneQ is a steal.

Joemeek, 877/JOEMEEK, www.joemeek.com.

MIX ONLINE EXTRAS

Tony Nunes (tonynunes@cox.net) is an audio engineer and educator based out of Phoenix.

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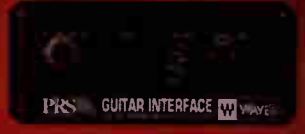

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BY KEVIN BECKA

Groove Tubes Glory Comp

Toughly Built Class-A Tube Compressor

In 2001, Groove Tubes established a beachhead in the high-end market with its ViPRE mic preamp, an all-tube unit with specialized features such as variable rise time, input impedance and a VU with five display settings. Not to be outdone, Groove Tubes has set another high standard with its Glory Comp variable transconductance compressor. Loaded with features and built like a tank, the Glory Comp is a one-of-a-kind dynamics controller.

NO GUTS, NO GLORY

Glory Comp's wiring, component layout, all-triode circuitry, beefy power supply and transformers point to adept technical design and execution. Outside, anyone familiar with ViPRE will be at home with Glory Comp's look and feel. The black aluminum faceplate, retro control knobs and easy-to-read labels give it a decided military look, while chrome carrying handles facilitate transporting this 37-pound beast.

Controls range from what you'd expect to others—such as the Heaven and Earth "Glory" controls—that beg explanation. The top row of controls carry adjustments for input (-20 dB to +10 dB), threshold (-21 dB to +9 dB), attack (1 ms to 250 ms), release (50 ms to 2 seconds with a logarithmic/ linear toggle), ratio (1:1 to 6:1 stepped logarithmically in 11 increments) and output (-20 dB to +10 dB). A Link toggle lets the unit act as master or slave when connected to a second Glory Comp. The sidechain EQ operates on internal sidechain sources only, with a 2-band 10dB boost/cut at either 50 Hz or 10k Hz.

The Glory control lets users add even harmonics between 40 Hz and 700 Hz. This effect is added to the compressed signal at the output stage, providing the ability to add presence and a bit of "hair" (distortion) to the signal. The meter knob has nine positions and controls what the large circular VU meter is reacting to. When set to Meter output, the unit offers four settings (0 dB, +4 dB, +8 dB and +20 dB); the gain reduction position offers a x1 and x2 setting; and the input setting reads either the program or sidechain input. A built-in 330Hz oscillator aids in setting two recessed balance pots, marked Plate and Cathode. These can be used to trim the push-pull signal levels when changing the two variable transconductance tubes or tweaking bias as the tubes naturally age. Lastly, toggles control power on/off and hard bypass.

The rear panel has XLR and TRS jacks for input and output. The TRS inputs are 6 dB more sensitive than the XLRs. Two TRS Control Voltage (CV) jacks (input, output and thru) allow daisy-chaining up to six Glory Comps. Yes! You can use these units in a surround setup, provided you have enough equity in your home. There are also XLR and TRS jacks for sidechain input, output and throughput, and, lastly, a fuse and an IEC AC connector.

GLORY, GLORY—HALLELUJAH!

My first test for the Glory Comp was on a bass guitar patched across the insert of an SSL 4000 G+ console headed to tape. I began with the recommended settings in the supplied Quick Start guide. I had to crank the input pretty hard to get the gain reduction I wanted, but the unit has plenty of headroom and didn't wince when I asked it to work. I matched the output—flipping the hard bypass back and forth—for a quick A/B, and the bass achieved a beautiful warmth and roundness that made it sit down and shake hands with the kick drum.

I could further adjust the tone, adding more presence and fullness, by turning the Glory control more toward the Heaven setting. For bass on this track, Glory worked best when I took it just beyond where I could hear it and then backed it off a bit. For the most part, even at near-extreme settings, it was hard to make the unit sound bad, although Heaven became less-than-heavenly when set fully clockwise. Even so, if you're looking for a sound with pushed, distorted midrange, this is not a bad way to go.

It's no wonder that the Glory Comp sounds great on low-frequency material. According to the designers, the its control circuitry was designed to bridge the gap between electronic and optical gain-reduction compressors. When an electronic compressor's attack and release controls are set to intervals approaching or equal to the time period of the wave it is trying to control, non-musical artifacts are generated. According to the Glory Comp manual, "Low-frequency phase splitting circuitry is applied to the varying program signal voltage sample before being presented to the compressor's rectifier circuit. The LF signal content is then full wave–rectified by two separate peak rectifier circuits. The result is four or more peak events per cycle of bass signal content, creating a far smoother DC control voltage for modulating the variable gain circuitry." The result is a more "optical" smoothness when compressing bass signals, but without the speed and control restrictions inherent in an optical approach.

I used the Glory Comp on tenor and soprano sax with equally good results. The tenor sounded lush and full at all dynamic levels, and on this tune, it worked best with a medium-fast attack with a long release. The Glory Comp gave the often-strident soprano a nice, silky, round smoothness and let me back off the overall volume while still having it dominant in the track.

This unit was made for lead vocals.

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It pushed the vocal right up front in the mix, making the inexpensive mic through which it was recorded sound better than it deserved. I added just a bit of Heaven and the vocal filled out the allotted space in the mix. Once again, I found best results by taking it beyond tasteful and then backing off a bit. But with backgrounds purposefully recorded at narrow bandwidth, compressed hard and then set at a low volume in the mix, an extreme Heaven setting was just the ticket.

Next, I tried the unit on a single Neumann U87 set five feet above and behind a drum kit. I could manipulate the amount of room in the mix by crunching this track at maximum ratio with a long decay and then pushing the input until the ambience was just where I wanted it. As the unit can provide a full 20 dB of gain, be careful that the output control is set optimally so you don't overload your insert return to the console.

Distorted guitar sounded full yet controlled, allowing me to flatten the dynamic range and make room for the vocal without losing tone. I might sound like a broken record, but the Glory control came to the rescue once again, allowing me to alter the tone, adding presence and beef in the critical low to mid range without adding EQ.

Lastly, the Glory Comp set to a relaxed 3:1 ratio with a few dB of gain reduction took the bite out of an acoustic guitar that was played with uneven dynamics. The unit is a true master of many situations, and although I only had one unit, I believe it would excel as a bus compressor.

SIMPLY GLORIOUS

The Groove Tubes Glory Comp is a neo-classic in the mold of the Fairchild and LA-2A. It can impart buttery, warm gain reduction to whatever it touches. In my tests, it especially excelled on bass, vocals, guitars and sax, and was an excellent cruncher for a room feed when recording a drum kit.

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Kevin Becka is Mix's technical editor.

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BY BARRY RUDOLPH

Heil Sound PR 40 Microphone

Large-Diaphragm Dynamic for Voice, Recording and Live Use

Although Heil Sound has decades of experience in the live sound and custom home theater industries, and is highly regarded for its quality microphones for amateur radio and communications, you may not have equated the company with studio mics—until now.

Its new PR 40 is a large-diaphragm, front-address mic that makes the transition from stage to broadcast studio to recording studio with ease.

INSIDE A HEIL

The PR 40 comes in a cushioned wood box and includes the simple SM3 5/8-inch mount assembly and plush polishing cloth. The mic has some options that are user-specific, including the SM2 shock-mount with removable holder for a station's call letters, the WS large foam windscreen, the CB-1 desk stand/base and the PL2T articulated boom.

The PR 40's components are made in the UK, Malaysia, Japan, China and Taiwan, and then shipped to the U.S. for final assembly and test. The PR 40 uses the DM 6 dynamic element with a 1.25-inch diaphragm for a response down to 28 Hz (-3dB point) and flat up through 18 kHz (-3 dB). There is a broad, 3dB peak in the 4- to 5kHz region, which accounts for this microphone's forward but not nasal sound.

The humbucking copper voice coil has a center tap (connected to ground) and uses a neodymium magnet structure for a magnetic field 10 times stronger than the traditional magnets in other microphones. Humbucking allows this mic to work perfectly around computer monitors and high-RF (radio frequency) energy fields that are common at commercial broadcast facilities. An end-fire, low-mass, quilted aluminum diaphragm gives the PR 40 excellent low-frequency response and low distortion throughout its wide frequency range.

WORKING WITH VOCALS

For voice recording, good dynamic mics have a certain sonic "immediacy" (as compared to condensers) that make vocals pop out of the mix—or in broadcast terms, jump out of a TV/radio speaker. Super-loud singers who love to "eat" the mic usually sound better on a full-range dynamic than on an expensive condenser mic. In this special situation, the condenser's extra sensitivity and ability to capture subtleties and nuance become liabilities.

I found the Heil to excel primarily at vocal and narration recording. There is plenty of output level, and the top end is noticeably open and airy—much like a condenser model. I compared the PR 40 to an Electro-Voice RE-27N/D, a newer variant of the famed RE-20 Variable-D dynamic, and found my vocalist was thinner-sounding on the E-V. Singing only two inches away from each mic meant that the proximity effect was the main reason why the PR 40 was fatter. (The E-V's design allows no proximity effect.) Doubling the distance from both mics evened the score, although the PR 40 still produced a touch more low-end size. "P" popping was almost non-existent on the PR 40—it is well-damped and hard to cause an offending plosive.

For recording guitar, I compared the Heil to two guitar mic stalwarts: a Shure SM57 and Sennheiser MD-421U. The PR 40 sounded very good, with a clear and open HF shine. Aiming slightly off-center of the speaker gave me a good balance of brightness and warmth. The SM57 provided an "in-your-face," edgy and compressed guitar sound with a lot less bass. The MD-421U sounded very smooth with good bottom end, but it was duller than the PR 40.

Next up were kick, snare and tom-toms. At another studio, I used a PreSonus M80 mic preamp and around 20 dB of gain to obtain a good level into Pro Tools|HD at 24-bit/96 kHz. I compared the Heil to a new SM57, a Beyer M88 and a MD-421U.

With the PR 40 on kick (an 18-inch Slingerland using a wood beater), I got more subsonic frequencies and a brighter attack than with the other mics. The M88 was rounder in the low midrange but had less snap in the attack. Both mics sounded good, but the Heil pulled a surprising amount of subsonic low end out of the small kick drum. Repositioning the PR 40 so that it was aimed away from the beater, it produced less attack and more roundness.

The vintage 1967 Ludwig 6.5-inch snare

sounded thinner on the Heil than an SM57. Both mics were about 10 inches away from the center of the head. The 57 had more guts in the low midrange, while the Heil was brighter. The Heil's physical size and inability to fit in close to get proximity effect on a full kit would preclude it from being used as a snare mic.

A 10-inch Slingerland tom-tom sounded good through the PR 40, MD-421U and 57. The 57, predictably, was more nasal, with a rolled-off top and bottom, while the 421 ended up being very close to the Heil with a good top and bottom. Again, the Heil had more attack—very much like a condenser but with much better rejection of leakage from the rest of the kit.

VERSATILE, RUGGED, AFFORDABLE

The Heil PR 40's "condenser-like" crispness is perfect for recording dull sources, while the otherwise flat response makes it an all-purpose tool. Its ruggedness (I accidentally dropped it on a carpeted floor without damage) makes it worthy for live work or around any drummer. As with other dynamic mics pitched to the wider broadcast and studio market, at $269, this affordable mic is a great addition to anyone's mic locker—from project to pro studio.

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

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

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BY OLIVER MASCIAROTTE

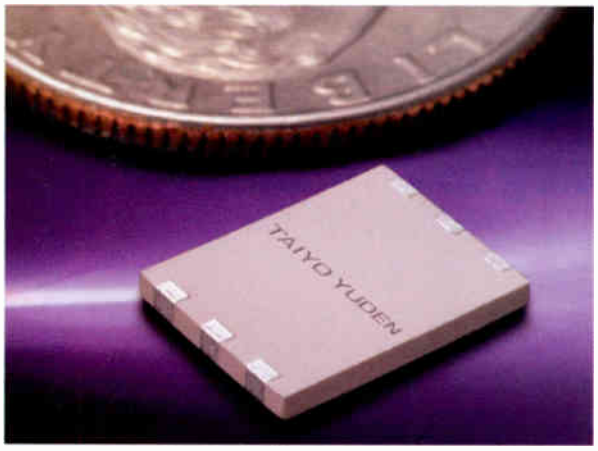
UWB and WUSB

Shattering the Barriers of WiFi

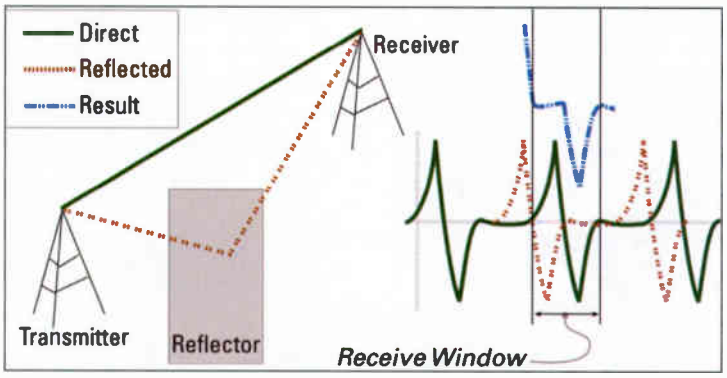
Back when I was in school, radio was a simple thing. It had a carrier wave and your choice of modulation—AM or FM. Life was good. Bandwidth, SNR and other parameters were not so good. Then along came UWB, or Ultra-Wideband, which turns the whole modulated carrier thing on its head and promises to open a new world of wireless data transmission.

But the UWB concept isn't so new. Around 1898, a groovy Dane named Valdemar Poulsen developed a magnetic wire recorder, the progenitor of the open-reel analog machines still in use. Radio research diverted his attention, and he used an arcing light to create a continuous wave, carrierless transmitter for wireless telegraph applications, operating much like the not-so-soothing tones your ignition system makes in between AM stations. That radio energy, created as the air ionizes and a spark leaps across the gap of both plug and mechanical distributor, is a shotgun of amplitudes and frequencies, very brief in duration but potent in its output. That same concept of amorphous, carrierless radio forms the basis for UWB.

Zooming ahead in time from spark gaps to technology gaps, some crazy researchers looking for ways to improve wireless data transmission noticed that these early radio pioneers were producing a scattering of radiated energy over a huge swath of spectrum. With that broad spectrum comes the ability to encode a gargantuan data payload. With enough research thrown at it in the past decade, mostly from our armed forces, UWB technology has moved from swords to plowshares, where it performs a wide variety of tasks.



This ceramic chip antenna, usually a cumbersome component, illustrates just how small UWB can be.



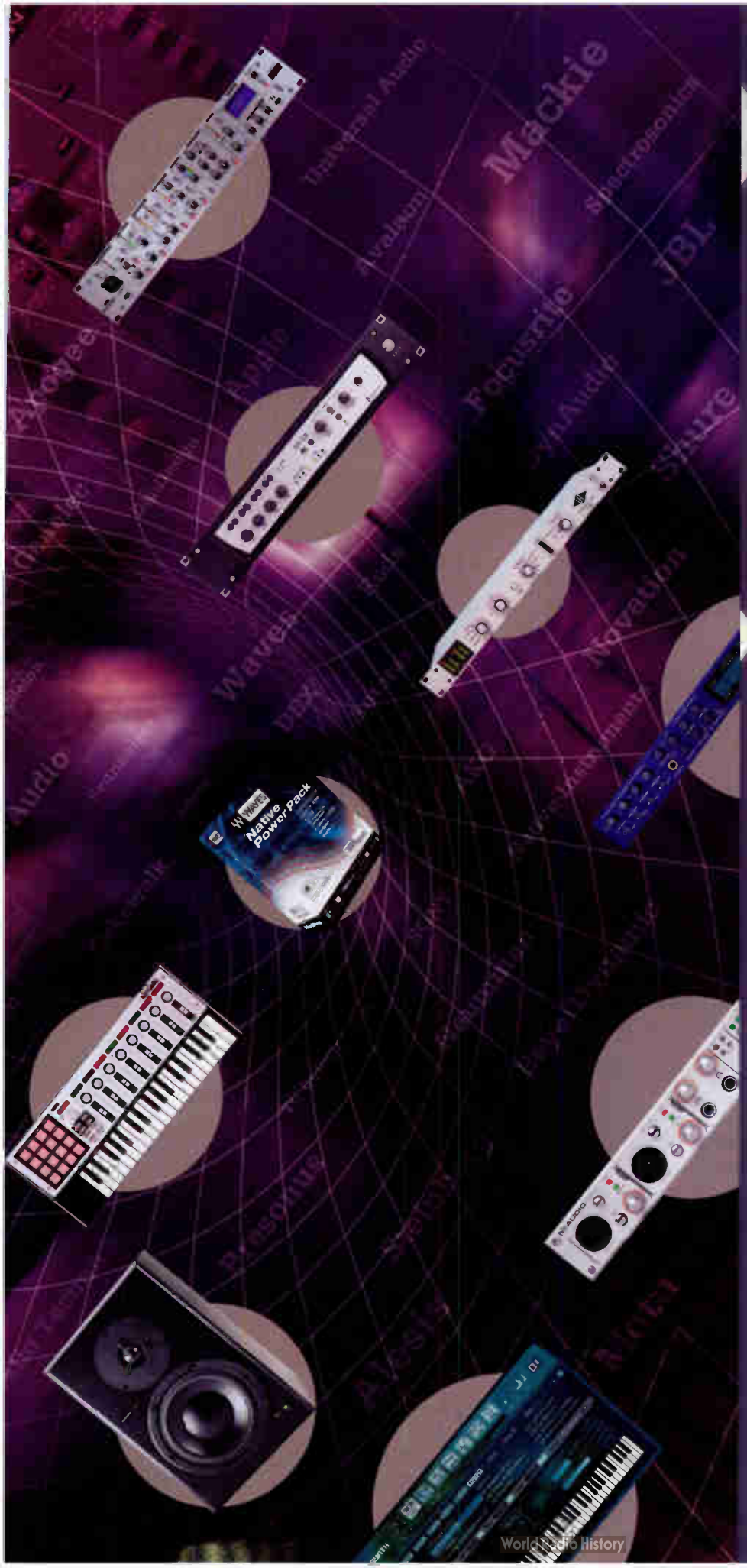
Multipath bad! WiFi is subject to the same multipath problems as any other RF signal. Compare the green transmitted signal with the blue actual received signal.

SO WHAT'S IN IT FOR ME?

Without getting into too much detail, UWB can encode data from a very low rate—using miniscule amounts of power—to a very high rate using a surprisingly small amount of power relative to continuous wave modulation schemes. That versatility—which trades complexity and power consumption for throughput—makes UWB a great approach for all sorts of data-schlepping tasks. Want a wireless "light switch" you can stick to your wall, anywhere you please, that uses so little power, it scavenges—battery-free—what little it needs from the temperature differential between wall and room? How about a better WiFi-style wireless network that penetrates solid objects better than current WiFi, providing good coverage regardless of transceiver location and data rates eight times higher than 802.11a? Want a handheld imager that can be used to look through walls and visually locate structural and wiring issues in your studio or installation without resorting to the sledgehammer? All of this and more is part and parcel of the ultra-wide variety of UWB craziness to come.

UWB has shown up at the past two Intel Developer Forums, first as a 2U prototype and then in a productized version incorporated into wireless USB—low power, moderate data rate, close range; all good.

In 2004, seven industry leaders—Agere Systems, HP, Intel, Microsoft, NEC, Philips Semiconductors and Samsung—formed the Wireless USB Promoter Group.



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Focused on delivering the first high-speed personal wireless interconnect, its charter included "defining the wireless USB (WUSB) specification with a bandwidth of 480 Mbps and to maintain the same usage and architecture as wired USB with a high-speed host-to-device connection."

Higher power, high-data-rate wireless FireWire and IP networks will also benefit. According to the MultiBand OFDM Alliance, a trade group that united UWB proponents onto one bandwagon, "The 1394 Trade Association understands the evolutionary industry progression to provide wireless connectivity, especially for high-speed applications." As such, the alliance established a Wireless Working Group to specify a wireless protocol adaptation layer (PAL). The Trade Association in May 2004 published a wireless PAL for 55 Mbps, whereby the significant and most fundamental elements for enabling a wireless protocol bridge were defined.

Both the 1394-TA Wireless Working Group and the 1394-TA Compliance and Interoperability Working Group are now engaged with the MultiBand OFDM Alliance and the WiMedia Alliance to define a platform and a compliance and interoperability plan for wireless 1394a operating at 400 Mbps. Low power, low data rate, longer range; also all good.

I mentioned the wireless light switch above, which is the purview of ZigBee, a set of protocols for digital communication via ultralow-power radio transceivers that are designed to move small amounts of data over moderate distances with little energy expenditure. ZigBee transceivers are meant to be placed—and ignored—running for years without servicing. In addition to making all types of wireless control less costly, this technology bodes well for remote instrumentation of most any moving object, from house-sized printing presses to marmots studied by biologists.

WIRELESS USB EDGES CLOSER

Lately, the networking folks at the IEEE 802 Working Group have been cranking out new extensions to existing standards to keep up. Take, for example, 802.15.3a, the 480Mbps standard being built. Officially, the IEEE 802.15 WPAN High-Rate Alternative PHY TG3a is, according to its site, "Working to define a project to provide a higher-speed PHY-enhancement amendment to 802.15.3 for applications that involve imaging and multimedia." This standard-in-waiting is the backbone of Wireless USB and Intel wants everyone to have it.

WPAN High-Rate Alternative PHY TG3a tells us it's hashing out a standard for high-speed, short-distance or "personal" wireless networking over an "alternative" or new PHY. The new PHYsical layer will be radio, maybe some form of UWB, but the fun part is, even at 30 feet, the data rate should exceed 100 Mbps—not too shabby for a wireless connection.

Earlier, I mentioned low-frequency UWB can more readily pass through solid objects than traditional radio. And as wireless implies broadcast, anyone would be able to listen, which is great for large audiences, but not so good for security. With Bluetooth getting a bloody nose from its many security stumbles, the WUSB folks are determined to prevent any future embarrassment.

The ultra-wide part of UWB means that radio signals are spread out over an ultra-wide range of frequencies, far wider than traditional channel-coding techniques. As the total energy is so spread out, there's not a lot at any particular frequency. To an untrained listener, a UWB transmission can easily be made to mimic the random background radio noise that pervades our environment. This feature makes it

inherently more secure than continuous wave transmissions that, on a spectrum analyzer, stick out from background noise like the proverbial sore thumb.

Two features of UWB include large RF bandwidth, which is extremely short-duration pulses, millions of times per second. Pulses are randomly spread in time; i.e., time-hopping. Data is time-modulated and coded as PPM. The other feature is a minimal signal profile—minimal pulse amplitude at a high repetition rate. Noise-like signal means low probability of interception/detection.

Fun fact: Transmitted signal bandwidth is inversely proportional to pulse duration. Because UWB is pulsed (not using a continuous wave carrier), this results in a typical bandwidth of less than 1.5 GHz and, with a low duty cycle, results in a low average energy density. For comparison, classic narrow-band communication like AM radio may have a 30kHz bandwidth, while spread-spectrum techniques, like 802.11a with its 5MHz bandwidth, is much wider. For UWB, the energy is spread so broadly that there's little energy in any specific band. This ability of a UWB signal to hide in the underbrush bodes well for the security professionals in the crowd. Reduced detection, spoofing and jamming are all good reasons, along with improved forensics, logistics, materials science and medicine, which is why the military has found UWB so attractive. UWB signaling techniques also require lower power than continuous wave techniques to get the data carriage job done, meaning longer battery life or smaller, more efficient power supplies.

CROWDED SKIES AND MIMO

Let's go on to another issue: the overcrowded radio spectrum. If you've ever set up a gaggle of reliable radio mics, you know this can be a challenge. You may also recall that 802.11 works in the same frequency band as wireless phones and other appliances, making it sometimes difficult to set up solid WiFi networks. As UWB doesn't use the relatively large power requirements of continous wave transmission systems and the total energy is spread very far, it exhibits higher "spatial capacity" than spread spectrum. In other words, less-crowded airwaves.

Another difference between UWB and continous wave transmissions is that UWB transceivers do not exhibit Rayleigh Fading, in which multipath interference causes signal reduction or cancellation. This brings us to MIMO.

Though radio engineers have been toiling over new cauldrons making high-tech soups, they haven't pushed the existing skillet on the back burner. The incredibly popular 802.11 standard is being improved to compete with the likes of WUSB and other networking darlings, and the new 802.11n standard hopes to address earlier shortcomings. One of the key technologies in the upgrade formula is MIMO, or Multiple In, Multiple Out, a kind of diversity method in which multiple transmitters (distributed in space and frequency) simultaneously transmit. MIMO is sort of "the more, the merrier" with its distributed approach and is much less susceptible to the vagaries of transceiver location, with its associated multipath, interference and signal attenuation issues than existing 802.11 products. Along with improved range, MIMO provides increased throughput by "bonding" multiple data streams into a bigger, virtual pipe.

Multipath interference exists wherever and whenever a transmitted electromagnetic signal takes more than one path to arrive at the receiver. In the case of radio, that means reflections off of solid objects like tall buildings and arriving at a receiver after the direct straight-line signal. Reception in the presence of multipath interference is the Holy Grail for most modern communications systems, whether you're talking WiFi, DTV or just a wireless rig for your guitar.

WHAT'S NEXT

Currently, 802.11n is being designed to replace the a, b and g varieties, but like consumer UWB-based gear in general, it isn't ready for prime-time. That hasn't stopped vendors from selling "pre-n" products, but interoperability issues are already causing consternation and we already know what poor interoperability did for Fibre Channel and other new technologies. My advice is to hold off on any new networking gear that mentions 802.11n on the box until the standard is ratified and vendors settle down a bit.

According to Forrester Research, the market for "visible network" mobile devices (such as cell phones and WiFi) is somewhere around 100 million to 1 billion units. For "invisible networks"—machine-to-machine communication without human intervention—the market is estimated to be much larger: 20 billion to 200 billion units. UWB, MIMO and other new technologies will enable the next generation of networking tech and that has lots of folks salivating. ■

In his past life, Omas presented a paper on UWB technology that became the basis of these writings. If you'd like a PDF version, give him a shout at omas@seneschal.net.

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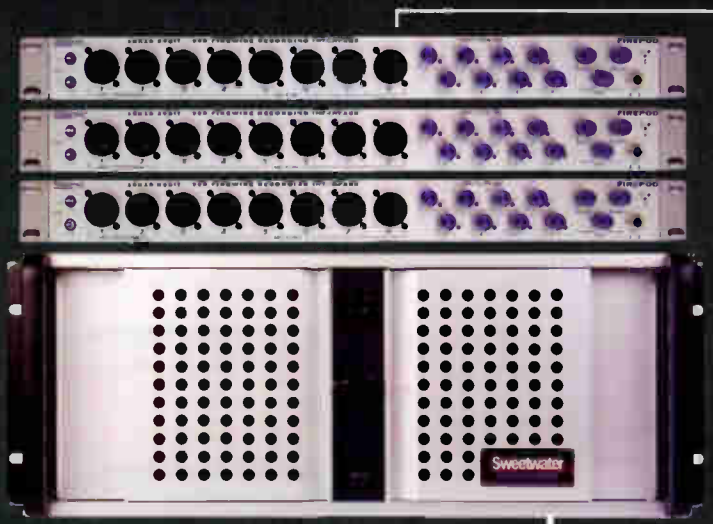

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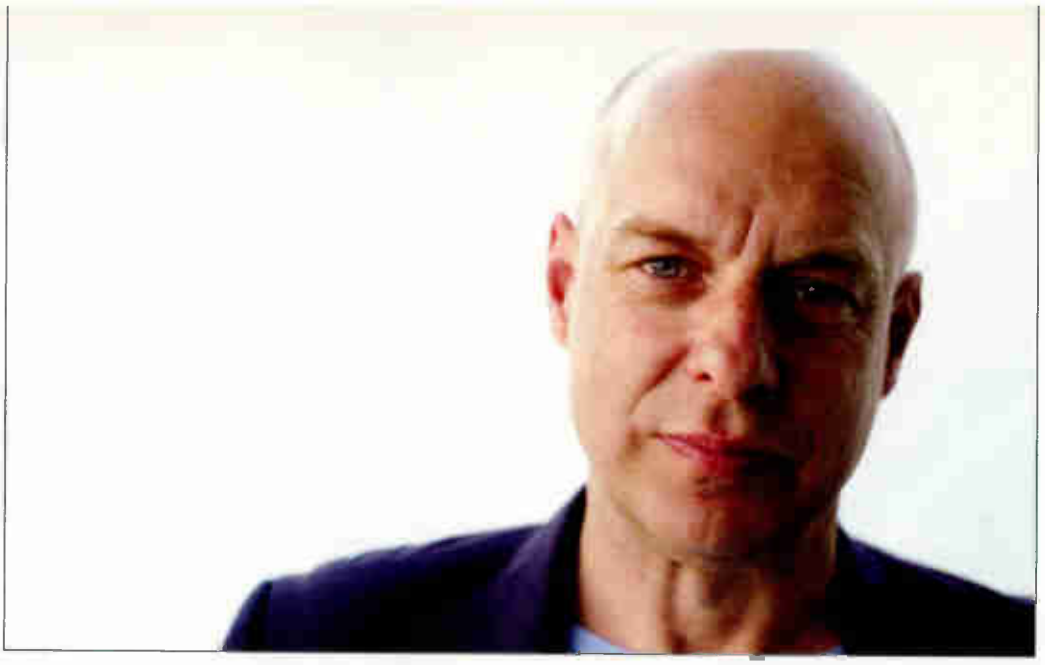


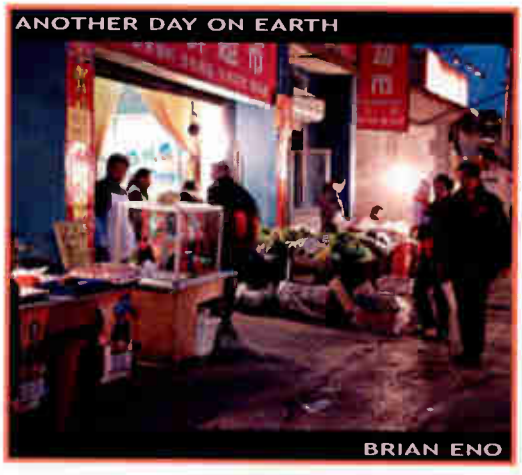
SOLO ENO

LATEST CD BLENDS AMBIENT AND ROCK

By Paul Tingen

Brian Eno once described the tape recorder as his "first instrument," and has often cited minimalist composer Steve Reich's cut-and-paste tape piece, "It's Gonna Rain" (1967), as one of his main musical influences. These preferences led almost inevitably to one of the concepts for which he became most known: the recording studio as a musical instrument. Throughout his long career, Eno has consistently applied this instrument in ways that are unusual, innovative and often commercially very successful.

Born in 1948 with the eminently aristocratic name of Peter George St. John le Baptiste de la Salle Eno, the Briton first caught the public eye in the early 1970s as a member of Roxy Music. After leaving that group, Eno pursued a solo career, which has included numerous avant-pop efforts and the ambient music for which he is best known. In addition, Eno has been involved in all manner of collaborations, ranging from guest appearances as a musician to full-scale productions. His credits include Ultravox, Jon Hassell, David Byrne, Toto, Harold Budd, the Neville Brothers, Peter Gabriel, Elvis Costello, INXS, Johnny Cash and, of course, his now classic work with David Bowie, Talking Heads and U2. Eno also became extensively involved in non-musical activities, from visual arts and video installations to lecturing and writing.



Given all of this diverse activity, it's amazing that he still finds time to maintain a solo career. His latest CD, *Another Day on Earth*, was released last summer. It's his first vocal album in more than two decades and appears to be his most deliberate effort at blending the ambient and song-based strands of his solo work. Normally a reluctant interviewee, Eno gave a round of interviews to promote his latest effort, offering *Mix* the opportunity to ask some probing questions about his new album and his attitudes about modern recording.

Tell me about your fascination with Steve Reich.

"It's Gonna Rain" was one of the most important pieces of music in my life, and the whole idea of generative and ambient music really came out of that. With a generative piece, you set a machine going and it makes itself, and you as the composer are also the listener. The act of listening is the act of composing. When you're hearing these complicated shifting patterns going on, it's the aural equivalent of moire illusions, and that very much impressed me.

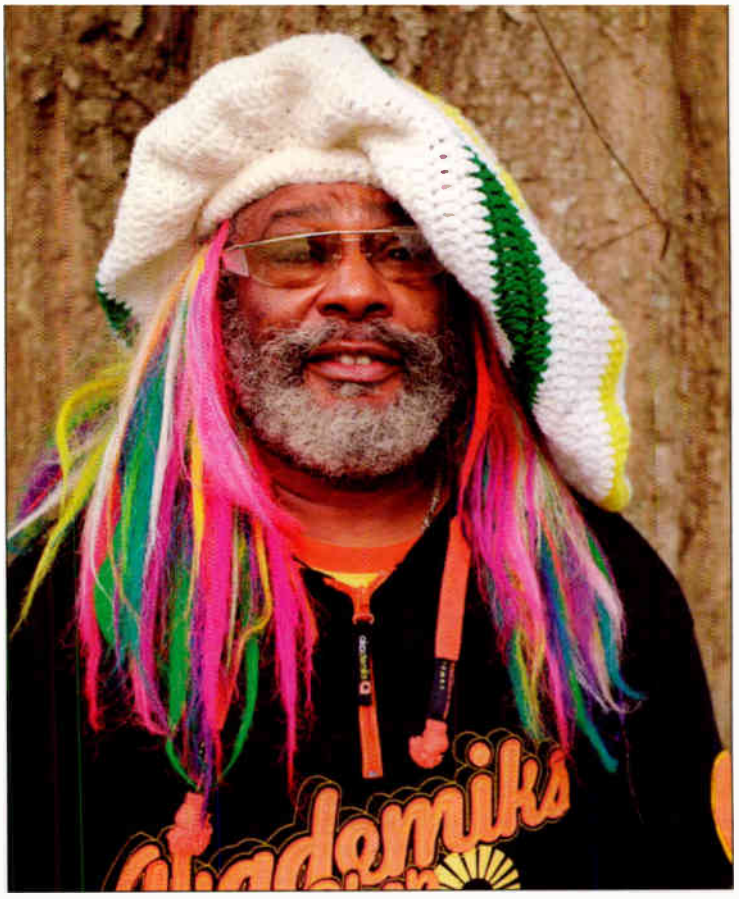
What also impressed me was the different position it gave the composer. The old romantic idea is that the composer pours out these wonderful things to the passive you, the listener. It's the idea of art as a kind of tube that the artist shouts down to the more-or-less thick listener at the end. Instead, with generative music, the composer becomes somebody who sets up a scenario of some kind and then lets it execute itself.

—CONTINUED ON PAGE 125

GEORGE CLINTON

THE FUNK WILL NEVER DIE

By Chris J. Walker



For most music aficionados, the word "funk" translates into hip-swaying, booty-shaking rhythms. However, for George Clinton—creator, producer and impresario of Funkadelic, Parliament and the P-Funk All-Stars—funk is a much broader concept and more mystical; it's an essential component of life. "The funk has no limits or bounds and you can never have too much," he says. "It can't be stopped and it will never die." Spoken like a true believer.

As for the music, Clinton's hard funk flourishes best in a concert setting: Every show is a Felliniesque party, with his musicians decked out in costumes that range from hilarious to erotic, and his audiences deliriously dance to the nonstop onslaught, swept up in the waves of rhythm, melody and noise that emanate from the huge conglomeration of players who fill every inch of stage. Clinton himself is a walking cacophony of tossed hair, clashing colors and outlandish outfits—adored by both his players and fans.

Most of Clinton's career has been dedicated to this sort of anarchic funk—yet 50 years ago (can it really be?), he was a founding member of a tame doo-wop group called The Parliaments. By the late '60s, however, he was already on the path of funk-rock righteousness. In 1968, he formed Funkadelic with keyboardist Bernie Worrell and others as a sort of psychedelic alter ego of the more commercial Sly & The Family Stone. With its Jimi Hendrix–inspired guitar lines and long jams, the band was more an underground cult sensation than a mainstream attraction. By 1972, Clinton had combined elements of his old Parliament group (including bassist Bootsy Collins, who'd been playing with James Brown) and Funkadelic into a series of edgy, horn-driven bands with large and loose memberships that sometimes swelled to dozens of players. A string of hits emanated from different configurations of Clinton's bands during the '70s, including "Dr. Funkenstein," "Chocolate City," "One Nation Under a Groove," "P. Funk (Wants to Get Funked Up)," "Tear the Roof Off the Sucker (Give Up the Funk)" and "Flashlight."

During the '80s, Clinton's mighty funk machine was occasionally derailed as a result of personnel squabbles and legal skirmishes with various record labels. Nevertheless, the funkateer scored a major hit with "Atomic Dog" from the 1982 solo album *Computer Games*. With Funkadelic/Parliament dead in the water, he resurrected his musical collective and formed the P-Funk All-Stars. Now, years later, his genius has been recognized by both rappers and rockers. He has been sampled often and is widely regarded as one of the true fathers of funk. In 1997, he was inducted into the Rock and Roll Hall of Fame (with Parliament and Funkadelic) and received an NAACP Lifetime Achievement Award.

Clinton's latest move is forming The C Kunspyruhzy, a new label for which he has recorded his first studio album in more than 10 years, *How Late Do U Have 2BB4UR Absent*, a double-CD containing 25 songs and jams. Additionally, he won a court order that gave him back control of some of his earlier music, and that will also come out on the new label in due time. "We have about 10 albums waiting in line and some remixes coming, too," Clinton says. "Each of them has two or three cuts from members in the band, so you'll be able to hear what each one of them is about. They have different focuses and some will sound like P-Funk songs. But it's a good representation of where our focus is at."

How Late... is a typically diverse and idiosyncratic album, featuring scores of players and singers (from Parliament forward), including three generations of his own clan. "'Never Ending Love' has about 50 people on it; some of the voices are like a choir," he notes. "My granddaughter [Sativa] does 'Something Stank (And I Want Some)'—that's very different from what we normally do, but it still sounds like us. Also, my son [Trey Lewd], who's a

good writer and singer, is on 'Su, Su, Su,' 'Our Secret' and a few other songs." Clinton also collaborated with funk and R&B luminaries such as Prince, Bobby Womack and Collins. Some of the tracks date back as far as 1994, and parts of an unreleased Funkadelic album also found their way into the eclectic stew.

—CONTINUED ON PAGE 126

PAT BENATAR'S "LOVE IS A BATTLEFIELD"

By Robyn Flans

It's fortunate that most creative people are extremely confident in their visions and fight for their beliefs. Many hits would not see the light of day if not for the insistence of the musicians, as too many times, a record company has vetoed a track that went on to become a monster song. And so it was with Pat Benatar's "Love Is a Battlefield," one of the two new studio tracks that Benatar and her cohorts recorded for the *Live From Earth* album in 1983.

The song, about the angst of teen love, was the perfect follow-up for Benatar, who had become one of the strongest female voices of the late '70s and early '80s, behind such mega-hits as "Heartbreaker," "Hit Me With Your Best Shot," "You Better Run," "Treat Me Right," "Promises in the Dark" and "Shadows of the Night." "Love Is a Battlefield," which features some quirky production elements, became one of her most successful releases, going to Number 5 on the *Billboard* singles charts and becoming a Number One rock album hit.

Arranger, co-producer (along with Peter Coleman, who also engineered), guitarist, creative visionary and Benatar's husband since 1982, Neil Giraldo recalls how, like with most songs sent to them (and even those he co-wrote), he always had a penchant for changing them around, sometimes quite radically. Written by Mike Chapman and Holly Knight, "Love Is a Battlefield" came to them via a very slow, acoustically performed demo.

"The demo was Mike singing with an acoustic guitar and it had a nice, minor-y feel to it," Giraldo says. "Something about the song really intrigued me. I happen to love songs that have a minor feel. I always loved 'Working Class Hero' by John Lennon because of its dark nature. 'Battlefield' also had a dark thing going on that was really interesting, so I thought, 'I think I should give this a shot because I think I can do something interesting with it.' I felt the essence of the song was there; I just needed to figure out how to pull it out.

"The first thought I had was to speed it up," he continues. "Because whether I write the song or the wife and I write it together, or the song is given to me, I try to completely shift it around 360 degrees just to see what comes out of it. I try to make it totally different from its original thing. That was even the case with 'Promises in the Dark,' which I wrote on the piano as a slow ballad. On the record, I ended up speeding that up and giving it a whole different texture, too."

Giraldo began work on "Battlefield" the first day he owned a Linn drum machine, which, at the time, was quite revolutionary. Because he really didn't know what he was doing with this new machine yet, his experimentation paved the way for a happy accident.

PHOTO: MOSHE BRAKHA

"Normally when we went into the studio, I would play live with Myron [Grombacher, drummer] and I would add bass afterward and the vocal would be going down with the guitar and drums," Giraldo says. "This time, the Linn came first. I started programming a beat just for the hell of it, playing a boogaloo sort of thing, and I was just hitting the buttons, checking out the machine. I had no idea what I was doing, but then I started liking the groove and thought, 'Maybe I should fix this up,' and I hit the Edit button by accident and made the 8-bar phrase a 6-bar phrase. I was so mad because I thought I had a great groove. I didn't necessarily think it was a great groove for 'Battlefield,' but it was a great groove. Then it hit me when I made the 'mistake' that it would be a great groove for 'Battlefield.' Then I was playing that 6-bar beat, letting it flip around all over the place, and I started adding the keyboards and guitars and building the song from there. I remember playing it for people who said, 'You can't use a 6-bar phrase. It's not the same in every verse and chorus,' and I said, 'I don't care.'"

Even Grombacher wasn't sure about it. "I remember having him play a hi-hat and snare on top of the loop," Giraldo recalls. "The loop had everything in it—hi-hat, kick and snare—but I had him play top kit: hi-hat and snare with fills to give it more of a live feel between the machine and the live player. He said, 'You can't do that. It's six bars, it flips around. The kick drum is in the wrong spot here.' I said, 'I don't care about any of that. I like the way it feels.' Everybody was trying to count it out as even to where it was supposed to be, and I said, 'Just imagine it as being a normal 8-bar phrase and play into it.'" Giraldo ended up close-miking the hi-hat and snare.

The song was cut in Studio B at MCA's Whitney facility in Glendale, Calif., which was equipped with a Neve console. "We didn't use that much outboard gear," Giraldo recalls. "We basically went through the Neve, used the Neve EQ and a little bit of compression. We used an 1176 compressor on the voice, a little Pultec, but not a lot. We also used some EMT 250 reverb on the voice and possibly the guitar." For the guitar, Giraldo used a Fender Strat and a Roland JCM-120 amp with AKG 414 mics on the speakers. "A lot of those vibrato fills was me bending the neck back, not so much a vibrato part," he notes.

After the vocals were recorded using Neumann U67s, Giraldo decided to have a little fun. He asked Benatar to open the song with some talking. "I was doing it as a joke, like a lot of those speaking bits The Supremes had on their records from the '60s. So for fun, I thought we should do it. I told Pat, 'Just talk. Have some fun with it.'"

And the whistling outro? More fun. "I knew she could whistle, so I said, 'Why don't you whistle at the end?' She said, 'Are you nuts?' I thought, 'It worked for Otis Redding on "Dock of the Bay," so just try it.' She said, 'Whatever.' She always thought I was nuts anyway," Giraldo says with a laugh.

Engineer Coleman also thought Giraldo was nuts and didn't much care for this particular track. "He is such a classy guy that it wasn't until the record came out and it was a hit that he told me, 'When I was doing the record, I hated absolutely everything about it. I thought it was the totally wrong direction,'" Giraldo recalls. "He told me that he went home while working on the song, and said to his wife, 'I have to open the Scotch. I don't know how to tell Neil tomorrow that I think he's totally going in the wrong direction.' He drank the Scotch and listened to the rough tape we had made and said, 'Wait a minute, I'm beginning to understand it. I think he might be onto something.' But he never said a thing to me until the end of the tracking session, when I tried to put vibes on the song. I tried every instrument I could, and when I said that, he said, 'I think we might already have it.'"

The mixing was done by hand in the same room by Coleman and Giraldo. "I took part of the console and he took the other and we rehearsed our moves and just did it," Giraldo recalls with a chuckle. "Pete was really great at that. He was really fun to work with."

Looking back, Giraldo laughs at how primitive recording seemed back then, but it had its advantages. "If we would have been making that record today, I would have fixed that 6-bar phrase to feel just like an 8-bar phrase and I maybe would have screwed that all up. It would never have been the same record."

Benatar and Giraldo still go out and play on the road from time to time and continue to make new albums together. The 2003 release *Go* was a fine studio set and this year's *Summer Vacation Tour Live* finds the couple running through a number of hits, including "Love Is a Battlefield" and a few newer tunes in electric and acoustic settings. ■

SOLO END

FROM PAGE 122

and then [the composer] watches that just like any other listener. I'm absolutely uninterested in the idea of using music as a vehicle for presenting the performer's personality.

Then why release a solo album, particularly a vocal album?

Five or six years ago, I noticed that I was starting to sing again and enjoying it. Also, certain technological developments have happened that give you the possibility to shape your voice, and that reawakened my interest. I always liked the idea of seeing what I was doing the way a playwright might think of a play or a novelist might think of a book. There are characters in there, but they're not the novelist, they're just characters in the book. And with the new voice-shaping technologies that are around now, you can suddenly make a voice that's clearly not your own.

I have nothing to say. I have a lot to say when you're asking me questions, but I don't want to use music as a way of saying things. [Laughs] What I want to use music for is a way of making things happen to me. I want to make things that create emotional or mental conditions for me, and one of the most important conditions is surrender. My yardstick for what constitutes good music is that it changes me. Do I think, "Wow, that's a new conception of how things could be," or, "That's a new set of feelings that I have never experienced before?"

On your new album, you treat your vocals with what sounds like a pitch-shifter on "And Then So Clear" and a vocoder on "Bottomliners." Can you provide some details?

Quite a lot of the vocal effects were done in DigiTech Pro Vocalist, which I don't think was ever very popular. It's a stand-alone box, not a plug-in, and it has lots of interesting functions. It's an intelligent harmonizer that you can run off a keyboard, so it will harmonize with the notes of the chords that you're playing. You can have a group of voices following the chords. It also has a gender-changing function with which you can alter the formant structure of your voice. That's what I did on "And Then So Clear."

I also pitched the voice up an octave and played the melody line on the keyboard. The latter gave a very funny effect because it makes the change between notes slightly artificial in an interesting way. I also applied Pro Vocalist for the vocoder effect. Plus, I used various forms of AutoTune a lot. This is very interesting as an effect in that it gives this unnatural perfection to your voice.

Another Day on Earth ***is striking for its unhurried pace. In the context of the 3-second-attention-span paradigm that has come to dominate the entertainment industry, aren't you scared of losing your listener?***

I've come to realize that I can trust listeners. They don't need to be constantly woken up. They're quite happy to drift for a while and come back in when the music comes back in. In general, the listener wants much less than the creator. When you're creating something, it's very easy to get into a nervous state and think, "Oh god, here's a whole bar where nothing happens," and try to get more stuff in. But as a listener, you're quite happy with these open spaces.

I noticed that years ago when I was experimenting with Revoxes and often found that I preferred the pieces played back at half-speed. This was just not because of the softer, more somber tonality, but simply because less happened.

Another Day on Earth ***sounds like an attempt at bridging the gap between your ambient and song-based work.***

The track "How Many Worlds" is a very short song with a very long instrumental section. There's just enough voice in there to make you hear it as a song, making it a bluff, a deceit, and there are a number of bluffs like that on the record. I learned this when I made *Another Green World* [1975], which had 14 pieces on it, five of them vocal pieces. I noticed that everyone thought about it as a song record, and I was pleased about that because people bring more quality of attention to a "song" record than an "instrumental" record.

You can research this. If you have a painting that's just a landscape, you see the eye moving in a very complex pattern as it scans it. If you put a figure in there, even if it is minute, then the eye will keep referring back to that. The same thing happens when we hear a voice. So for me, it was like I've been doing landscapes for a long time and now I have re-introduced some figures; i.e., the voice. Where are they going to fit? How big will they be? Is it going to be like the *Mona Lisa*, with a big figure in front of the backdrop, or more like a

[John] Constable painting, where it's just a tiny figure in a large landscape? And how can I destabilize that in some way—how can I put a voice in there and not make it the center of attention?

You recorded* Another Day on Earth *on a Mac with Logic software, but you have in the past been very critical of computers.

There's still quite a lot of hate going on for me in working with computers, but I think programs have improved a great deal. The objections I used to make have been taken onboard more by programmers. Programs are less menu-intensive than they used to be, and Logic is a very evolved program. I also think that plug-in instruments today are much better than the early ones. The problem remains with the interface with the computer keyboard. There are certain decisions that you make on a keyboard that you wouldn't make on a guitar and vice versa. You have to stay aware when you start working with a computer that you're on a very tilted playing field.

It's very easy to do all these things that computers want you to do—like quantize or use equal temperament—if you're working with a keyboard, or use endless tracks and editing options, and in that way have the computer determine what kind of music you're making. This has been fatal for a lot of people because the number of options at every stage proliferates exponentially. What I often see in studios is that when one problem can't be solved quickly—for instance, the lyric writing, which is always a problem—people start working on non-problems like, "Let's try 38 different guitar parts on a song and let's play around with these sounds in 150 ways each." A huge amount of attention goes into re-cooking the bit of the track that doesn't need attention. So you need to be very aware of the potential of technology to pull you into screwdriver mode.

Korg and Native Instruments are mentioned on the credits* of Another Day on Earth. *Why?

These companies have both made contributions to solving the computer problems I've been talking about. I'm a big fan of Native Instruments' FM7 program, which is sort of based on the Yamaha DX7. It's the DX7 that I always wanted to have because you can suddenly connect things in different ways. With the FM7, you can also tune the keyboard in any way you want so you can make music in just intonation or Arabic intonation or whatever. Korg has its Kaoss pads, which are a way of taking sounds into the domain of muscular control. If you have a few Kaoss pads in-line, like I do, you can really start playing with sound itself, with the physical character of the sound. The pads are very intuitive: Anyone can learn to use them in a second. It's immediately obvious what you do, and it immediately takes you into a completely different place, because when working with computers, you normally don't use your muscles in that way. You're focused on your head, and the 3 million years of evolution that resulted in incredible muscular skill doesn't get a look-in.

Can you elaborate on your recording and mixing processes?

When I was playing parts live into the computer, I would do processing through external boxes. I'd also sometimes feed stuff out of my computer through the Kaoss pads. There's a lot of plug-in processing going on. I'd usually print the processed track inside of the computer and then push it back in time, because when there's a lot of processing, you get latency problems. I like working like that because I can do different things with the already-processed track.

> What constitutes good music is that it changes me. Do I think, "Wow, that's a new conception of how things could be," or, "That's a set of feelings that I have never experienced before?"
>
> —Brian Eno

What do you make of the objection that working exclusively inside of computers results in a flat and lifeless sound?

It's interesting that after working in computers for a while, when you then listen to something that wasn't made in a computer, it sometimes has a shocking, sparkling live-ness to it. But you simply have to accept that something happens when working with computers and you work within that constraint. If you're a print artist, you know that lithographs will give you a different effect than silk screens. So I'm aware that in working with computers, you exclude certain sonic possibilities, as you do when working with analog tape.

In working with digital, you sacrifice certain possibilities of sonic range and depth, while in working with analog, you sacrifice all the operational freedom that comes with computers.

How would you evaluate the differences between analog and digital?

I'm not sure they're so much to do with the internal characteristics of the medium as with the different ways you work when you're using them. When you work with analog, you go for a performance because it's too complicated to cut up tape and so on. So you tend to do takes until you get a good performance. But with digital, you say, "That's a good bar, we'll copy that a few times."

Also, when you work with digital, you tend to work with people who aren't sound engineers, they're computer operators. Or, they're not people who spent their lives listening to drum sounds and thinking, "I wonder how I can make that sound better—perhaps with this compressor instead of that one or if I move that mic a little bit away from the drums." I think that's a different world.

I engineered *Another Day on Earth* myself because, otherwise, I would have had to spend six years in a studio and pay staff, and that would have become too expensive. But on the song "Under," the drums were recorded by someone else a long time ago. When you listen to the album, the drums on "Under" are definitely the best-sounding drums on there, and that's not only because it's one of the world's best drummers [Willie Green] playing, but also because he was recorded by an engineer who was very good at recording drums. But people who work with computers normally sit there on their own and are simultaneously being musician, engineer, composer—all these different jobs. It may be humbling to say, but perhaps we're not all equally good at all these jobs and there's a reason for calling in the experts. ■

GEORGE CLINTON

FROM PAGE 123

Clinton produced most of the album himself, along with Jazze Pha and Kenny Hamilton.

"I prefer cutting with a live band instead of the Pro Tools stuff that doesn't have any feeling," Clinton says. "However, we did most of this CD that way because we worked with a lot of existing tracks. I put [the engineers] through the test to do things they normally wouldn't do and sometimes asked them to do the impossible, but mainly it was basic stuff." Continuing, Clinton comments about the rawness of the recording: "We had the organic representation, some EQ and very little sequencing, with a sample of something here and there. But we even made that get funky. It was bad enough to use a drum machine sometimes and then have the drummers overdub percussion. But

with most of this stuff, we didn't have to do too much to it, unless it was on analog tape. But the main thing was to get that analog feel as much as possible. If I do all digital, I'll sample some Bessie Smith records so I can get some of that cracking sound; they have to get some dirt on the CD."

Clinton admits to being somewhat out of touch with current technology. He doesn't have a personal computer and isn't able to program his cell phone. Just the same, his networks of cohorts are constantly presenting discs, files and other formats to him, and with help, he has learned how to make the most of them. "There are tracks from all over the place, with some already premixed years ago. Sometimes, nobody would know where the separated parts were, so we would put the tracks on tape and overdub them. Most of that stuff I have in storage." The studios he used during the project included United Sound (Detroit); DARP, Platypus and Atlantic First (Atlanta); Hyde Street (San Francisco); Or What (Tallahassee, Fla.); Sound Castle and Sound & Sound (L.A.); Paisley Park (Minneapolis); and many others, each with its own engineers and assistants. Still, there are two engineers the nomadic and visionary producer relies on more than anyone else: Larry Ferguson, based in Los Angeles, has been an important member of Clinton's team for more than two decades, while Gary Wright has become a significant factor the past four years.

Ferguson, who's also a close friend of Clinton's, describes what it's like to be around him and work on "the funk": "George is totally different from anybody else. For example, he may be in Minneapolis or somewhere hanging out with a friend and they come up with a song. He'll have a copy of the track that he absolutely loves on a DAT and continues traveling around. So he'll go to a studio wherever he's at—like Detroit—and record to hard disk while overdubbing. That becomes a master, and he'll manage the stereo tracks, adding vocals, horns and anything else [through Pro Tools]. Then he'll leave the file or whatever format he's working on with me to do whatever I want.

"However, that's both good and bad, because sometimes he's married to what he's done. You can't change anything on him [too much] because he has an unbelievable memory. As a matter of fact, he never writes lyrics, music or notes down. He's definitely a special person, but at the same time a regular guy who doesn't care about material things and really just lives for music."

For the new Clinton project, Ferguson mixed seven tracks at DARP through an SSL board to Pro Tools over several weeks. Clinton's preference is for things to not sound too polished. Ferguson says that several times he was in the process of finishing up a track when the producer would yell out, "Make me a copy of that!" Normally, that means don't do anything else to it, but sometimes it can also mean that Clinton wants to do more to it. Spontaneity is a large part of Clinton's makeup, on- and offstage.

In Tallahassee at C Kunspyruhzy's new headquarters, Wright—who has spent time engineering in New York, L.A. and Boston previously—was hired on as a permanent engineer. Besides working on current sessions, his duties include archiving, managing and modifying the enormous amount of material generated during the years by Clinton's many funky manifestations. "We have hundreds of 2-inch tapes and ADATs, so I either enhance them, do overdubs or make completely new tracks through Pro Tools. For instance, 'Goodnight Sweetheart, Goodnight' was an old doo-wop song and I did a trip-hop/jungle version of it. That's pretty much a lot of what I'm up to—sort of looking to the future of the funk. George is so prolific and probably the hardest-working man I've ever met, constantly cranking out 15 to 20 tracks a month. But sometimes things don't get completed, so I often finish things up for him. He's a legendary innovator, always has a concept and it doesn't always become apparent what he's doing. But the funk is always there."

Wright, who also did the bulk of his mixing for the new CD at DARP, says the studio tools he uses most often on Clinton's music include a Fairchild compressor/limiter plug-in and Eventide Harmonizer, various Filter Bank plug-ins and, because he's a keyboard player, the Access Virus synth plug-in. When not working on projects from Clinton's vaults, Wright produces other musicians' projects and creates his own music. However, working with Clinton means that there isn't much time for outside projects: "George is always on the road doing something, and within the span of a week, he'll be performing in Houston, in Minneapolis with Prince, in Atlanta with Lil John, then back in Houston with Scarface. So he records stuff on the road and brings it here. [Ultimately,] our goal is to make Tallahassee the next Motown and have his music—new progressive stuff, along with hard funk and dirty Southern hip hop—explode out of here." ■

COOL SPINS

The Mix Staff Members Pick Their Current Favorites

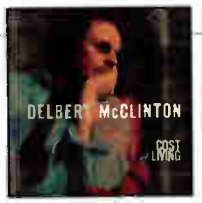
The Knitters

Modern Sounds of...The Knitters (Rounder)

The Knitters were a short-lived alter-ego of X, the cream of L.A.'s '80s punk scene. When guitarist Billy Zoom left the band, Dave Alvin (then guitarist/co-founder of The Blasters) briefly married his roots-rocking guitar work to X's knock-out punk poetry, giving birth to one amazing album, The Knitters' *Poor Little Critter in the Road*. It was a bit tongue-in-cheek, but a sincere revelation to punks who hadn't yet found their roots. Twenty years later, The Knitters' second album comes as less of a surprise but no less powerful, with country remakes of X songs, a Dave Alvin ballad and rewed up versions of traditional country tunes. Vocalists Exene Cervenka and John Doe sound even sweeter today than when they were young and hungry. This is great fun no matter what your musical persuasion.

Producers: The Knitters and JD. Engineers: Craig Adams, Mark Linett. Studios: Winslow Ct. Studio (Hollywood), Your Place or Mine (L.A.). Mastering: Joe Gastwirt, Joe Gastwirt Mastering.

—Barbara Schultz



Delbert McClinton

Cost of Living (New West)

Would you believe me if I said that Delbert McClinton's latest album is the best of his more than 30-year career? No lie! He's always made fine, underappreciated albums that blend blues, R&B, honky-tonk and folk into a distinctive Texas stew. But with each passing year, his smoky voice acquires more authority and the emotional pitch of his songs about love, loss and heartbreak (the true "cost of living") seem deeper and more heartfelt. There are several new classics here: "Kiss Her Once for Me" and "Your Memory, Me and the Blues" ache with sad resignation, while the mesmerizing "Down in Mexico" sounds like a catchy update of a Marty Robbins ballad. Every song feels like a story, and it all adds up to a "book" you won't want to put down.

Producers: Delbert McClinton, Gary Nicholson. Engineers: Matt Andrews, Ray Kennedy, Nicholson, Dave Sinko. Studios: Fearless, Sound Emporium, Room & Board (all in Nashville). Mastering: Jim DeMain, Ray Kennedy.

—Blair Jackson

Nellie McKay

Pretty Little Head (Columbia)

If you can get past the Broadway-inspired opening number on Nellie McKay's sophomore album, *Pretty Little Head*, then you've passed her test. McKay likes to take musical chances and she expects that her audience will, too, as well as ride out a few creative stabs in the dark. Thus, the new album, like her fine debut, is a test lab: A few songs act like exploding beakers, all chaos and smoke, but the overall effect of her mad science is a cure for pop mediocrity. In my mind, that makes her an artist to trust. The brilliance of songs such as "Pink Chandelier," "There You Are in Me" and duets with Cyndi Lauper (vamping along with her distinctive cotton-candy vocals on "Bee Charmer") and k.d. lang, who croons responses as McKay's lover on "We Had It Right," make the outlandish first and last tracks easy to forgive.

Producer: McKay. Mixing and mastering: Walter Fischbacher at Lofish Productions (New York City) and Conway Studios (L.A.).

—Breean Lingle

Anoushka Shankar

Rise (Angel/EMI)

Ravi Shankar's other talented daughter (besides Norah Jones) has followed in dad's footsteps by playing the sitar and writing within the Indian music tradition. However, there are many Western touches on this superb album, including electric bass, electronic keyboards (played by Ravi Shankar), some drums and Indian-inspired piano. Wonderful touches abound: the plucked piano strings on "Solea"; the vocal percussion and didjeridoo drone on "Sinister Grains"; Swarnima Gusain's haunting vocals on "Beloved"; V.M. Bhatt's flights on the guitar-like *mohan veena*; and intriguing little percussion and sound effects throughout. A real gem that will doubtless earn a Grammy nom.

Producer: Anoushka Shankar. Engineers: Gaurav Raina, Nishant Peralta, Kohinoor, Gautam Kaul, Akshay Pandit, Barry Phillips, Eddie. Studios: GR (New Delhi), Path (Santa Monica, Calif.), Audio Centre 3 (Calcutta), RSC (New Delhi), Barry's Cave (Santa Cruz, Calif.), Glam Slam (Mumbai). Mastering: Greg Calbi/Sterling (New York City).

—Blair Jackson

Bill Frisell

East/West (Nonesuch)

This sublime 2-CD live album—featuring guitarist extraordinaire Bill Frisell fronting two different trios (drummer Kenny Wolleson in both; the bassists are Viktor Krauss and Tony Scheer)—shows Frisell's amazing ability to explore and occasionally deconstruct melodies in fascinating and creative ways. Finding the unseen spaces in such well-worn numbers as "I Heard It Through the Grapevine," "Shenandoah," "A Hard Rain's Gonna Fall" and "Goodnight Irene," Frisell and company put a unique stamp on everything they touch. He deftly integrates various loops and electronic touches into his playing, which moves from the most pristinely beautiful picking imaginable to dark, troubling rumblings. Of the handful of Frisell originals, I like the lovely "Boubacar" best.

Producer: Lee Townsend. Recorded at Yoshi's (Oakland, Calif.) by Claudia Englehart and the Village Vanguard (New York City) by Tucker Martine. Mixed at In the Pocket (Forrestville, Calif.) by Martine. Mastering: Greg Calbi/Sterling (New York City).

—Blair Jackson

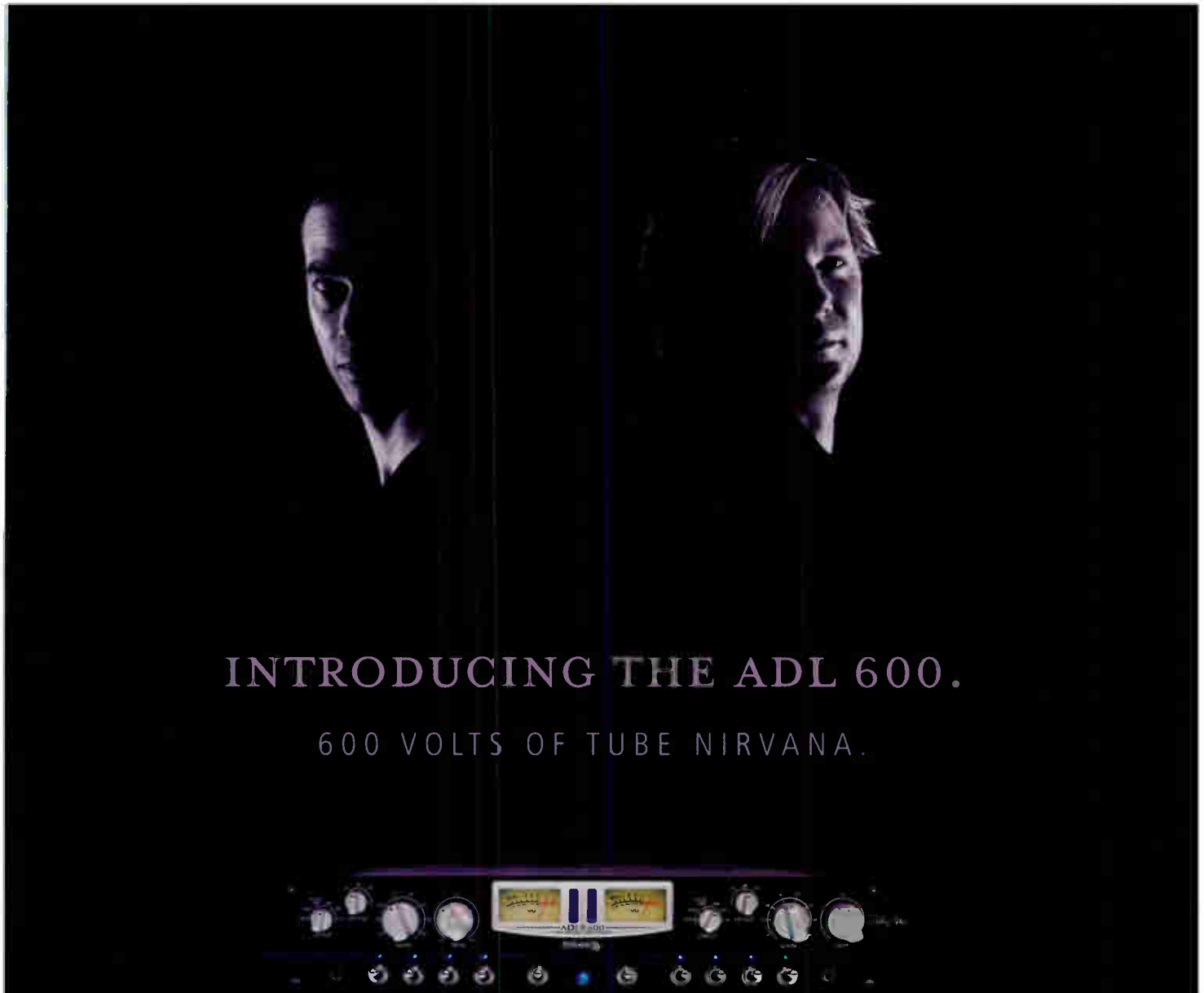
Christopher Bissonnette

Periphery (Kranky)

With its soothing and sometimes dreamy piano, orchestral and mutating sounds, Christopher Bissonnette's debut album is hypnotic and infectious. While his pieces are similar in nature to those of New York City experimental media and loop pioneer William Basinski and Brian Eno's atmospheric and ambient work, Bissonnette creates his own niche by removing any trace of the original organic sounds that he collects and completely recontextualizing the samples, adding hints of reverb and other audio manipulations. "Proportions in Motion" features static clicks and pops and distant, creature-like scratching, mingled with soft, wavering tonal interludes. "Substrata" starts out with subtle orchestral tones, but as Bissonnette adds layers of new sounds to the movement, the piece turns intense and introspective.

Produced, recorded and mixed by Bissonnette at his home studio in Windsor, Ontario. Mastering: Bissonnette and Joshua Eustis at Benelli Sound Lab (New Orleans).

—Lori Kennedy



INTRODUCING THE ADL 600.

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Several years ago, Anthony DeMaria, President of Anthony DeMaria Labs and Jim Odom, President of PreSonus met at an AES show in New York. Jim noticed a prototype microphone preamplifier lurking in the back of the ADL booth and was intrigued. After chatting with Anthony about the design – three tubes per channel, dual input/output transformers, 600 volt power rails – he had to hear it. Totally floored by the mammoth sound and complete absence of noise, Jim was convinced this was a match made in sonic nirvana. Designed by Anthony DeMaria, engineered and manufactured by PreSonus in the USA, the ADL 600 is a microphone preamplifier that has a sonic character like no other.

The Sales Engineers at Sweetwater have heard every microphone preamplifier under the sun, so it's unusual that a new preamp really gets them excited. That's why when we let them hear the ADL 600, we knew we were on to something. Like Jim and Anthony, Sweetwater instantly recognized the ADL 600 as something truly special. Ask your Sales Engineer about the ADL 600's sonic character, and hear it for yourself in action at www.sweetwater.com/adl600.

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L.A. GRAPEVINE

by Maureen Droney

Since it was founded in 2000, Santa Monica's 5.1 Entertainment Group (www.5point1.net) has been in the forefront of both multimedia and multichannel sound technology. Boasting a discography of more than 300 DVD-Video and DVD-Audio titles by artists including Britney Spears, Janet Jackson, Sting, R. Kelly and Rob Thomas, in June 2005, 5.1 completed its 100th DualDisc.

"We've worked very hard with manufacturers and with the RIAA on getting DualDisc up to speed," says company president Bob Michaels, "making sure the logos are correct and that all the companies are on one page. With DualDisc, we're giving the consumer the value they're looking for, like more video and surround mixes. It's a successful product that addresses all the concerns from both the audio and video worlds with plenty of room for content. It's very important to have one voice in this so that the consumer doesn't get confused, and that's what we've been working for."

PHOTO: MAUREEN DRONEY

5.1 Entertainment's Gary Lux (left) and Bob Michaels

With both DualDiscs and high-definition video now prominent on the scene, 5.1's business model is evolving. Several recent customized recording projects were developed in partnership with major record labels, including Ben Harper and the Blind Boys of Alabama live at New York's Apollo Theatre (*Live at the Apollo*) and a Shelby Lynne concert with a behind-the-scenes video.

5.1's facility offers full-service production under one roof. Covered on-site are all the bases: storyboarding, project coordination, to audio and video recording—both studio and location—mixing, graphics, authoring and quality control. "We offer so much here that sometimes the biggest problem is explaining what we do," Michaels acknowledges. "But clearly, we've become a catalyst to help traditional record labels become true multimedia publishers. Things have jumped very quickly to a new technology level, and project managers at the labels are faced with turning out DVD projects in addition to all the CD work they're doing.

"We've identified their needs and partnered with them to handle everything from mining their archives for content to—on the business side—ensuring that they have the proper rights. With so many changes in the industry, many audio and video vaults are in disarray. People don't know what they have or what its quality is. We're experienced at identifying and utilizing these assets.

"We also work with people to get projects off the ground," Michaels continues. "Sometimes a great project doesn't immediately fit a label's marketing needs; in that case, we can partner and help produce it. Ben Harper's project was almost a dead deal. We stepped in, did the recording, financed the post and helped get it made. Because of our business model, which includes developing HD programming, it makes sense for us to get involved and to help move projects forward."

"We do all kinds of projects," adds producer/engineer and VP of production Gary Lux. "But whether it's a music video, a movie soundtrack, a concert recording or an album project, for us, the common denominator is music. Labels come to us because of our musicality, and we've

—CONTINUED ON PAGE 134

NASHVILLE SKYLINE

by Rick Clark

When I was growing up and starting to play in garage bands and dreaming of being a rock god one day, the idea of going to a school and learning to play Led Zeppelin licks on guitar or Jack Bruce-style bass was about as easy to visualize as taking courses to understand the nuances of various blends of marijuana.

That said, my high school band class in Memphis was a lot of fun. My band teacher played in sessions for all the Isaac Hayes records, and when he snuck out of school to do a session, we played our favorite rock albums. I discovered the first Traffic album in band class. When I wasn't playing some form of percussion instrument, I played electric bass. I remember hauling my bass rig up to the top of the high school football stadium stands and freezing my butt off trying to play horn-driven Chicago and Blood, Sweat & Tears numbers wearing gloves!

Overall, the music curriculum of the time was geared toward directing students into careers as high school band directors, music teachers or symphony players, and it wouldn't be until years later that Memphis State University would become one of the first schools in the country to have a recording and music industry program.

I recently received a DVD of a documentary called *Rock School*, which portrays an urban band camp for kids run by a rather in-your-face Jack Black *School of Rock*–type guy. I could relate to the challenges and joys of his undertaking, as I had played a small part for the past several years teaching at the Kids on Stage summer camp.

Kids on Stage was created in 1997 by a visionary guy named Aubrey Preston and a handful of parents and local music people (particularly, Gene Cotton) in the Leiper's Fork area just south of Nashville in western Williamson County. During the years, locals such as Michael McDonald, John Hiatt and Naomi and Wynonna Judd, among many others, have volunteered to make Kids on Stage

an incredibly rewarding endeavor.

The beauty of these types of camps is seen by how some thoughtful seed-planting enables students to step out of their shells and learn fearless self-expression, while gaining an understanding of the principles of teamwork in a band context.

Bill Lloyd, a seriously fine songwriter, recording artist, producer and guitarist, came onboard this summer for Kids on Stage. It was great seeing him work with his group and learn that he had been asked by another school, Battleground Academy, to start their own Kids on Stage–inspired band camp.

When I was there, I got to work with a very cool group of girls writing an original song, as well as creating an arrangement for a whacked-out version of the theme song from the Broadway show *Phantom of the Opera*. I have to say, I'm not an Andrew Lloyd Webber fan, but it became more interesting when two of the more goth-inclined bandmembers (who were big Tim Burton and *Rocky Horror* fans) started plotting ways to disassemble the *Phantom* with "Time Warp" and Willie Wonka.

This band camp, officially called

—*CONTINUED ON PAGE 134*

PHOTO: RICK CLARK

Battleground Academy students rock out at band camp.

NEW YORK METRO

by David Weiss

CBGB—it seems like no matter how many times you see those letters, the mystique remains. A bar originally built in 1973 to be the forum for New Yorkers who dug "country bluegrass blues," it instead became one of the most revered locations in rock 'n' roll. The number of pivotal bands who launched their careers there is long and well-known, including The Ramones, Blondie, Talking Heads and Television. The likes of Nirvana, Smashing Pumpkins and The Melvins had gloriously loud shows there, and any true New York City rock musician has played there at least once.

But in 2005, time may finally catch up with the grungy black hole of a venue at 315 Bowery, as the club remains locked in a bitter feud with its landlord that leaves it operating without a lease (as of September) and just a court decision away from closing for good. CBGB's cultural impact is the stuff of legend, but besides its advanced booking policies, the club has another secret weapon worth documenting before it's too late: an awesomely powerful and accurate sound system designed by a team of fanatics hell-bent on ripping people's heads off with the best live audio imaginable.

System co-designer Charlie Martin clearly remembers the first time he ever laid eyes on CBGB's famously feisty founder, Hilly Kristal, on a rainy day three decades or so ago. "He was playing his guitar at the front door," says Martin, seated behind the front-of-house Soundcraft console as he scans the club's flyer-plastered walls and angled stage on a recent afternoon. "Hilly was the first music impresario I ever met who was in it for the music. In a very short amount of time, I started working for him as a stage manager and evolved into engineer. I did most

PHOTO: DAVID WEISS

From left: CBGB's founder Hilly Kristal with Carol Costa-Marshall, Charlie Martin and Alvin Robertson

of the mixing there for the later part of the '70s."

But Martin did more than mix the multitude of bands who played at CBGB. Along with the late Norman Dunn, who passed away just a week before this article's interviews were conducted, Martin spearheaded a complete overhaul of CBGB's sound system that would help assure the club's place in rock history. The year was 1976. "As the focus on the club from record companies and the media started to really grow, the bands became more and more important and had to run at a very high level," Martin recalls. "It was decided to install a state-of-the-art sound system. Hilly, of course, being 100 percent committed to the music, was willing to purchase what at the time was the most expensive sound system created for a place of this cubic footage."

Kristal remembers things a little differently. "What happened with the sound system was that they put something over on me," he says. "It ended up costing $130,000 in 1976. It took me years and years to pay for it, and probably ultimately cost me $200,000. The sound was always important to me, but I didn't know how good the sound could be until they put this system in here. It's really amazing how clear and wonderful it is."

The haphazard appearance of CBGB's

—*CONTINUED ON PAGE 135*

SCHOOL OF ROCK BRANCHES OUT

STATEN ISLAND YOUTH WELCOME FULL-SERVICE STUDIO

Staten Island reportedly has the greatest number of families with children as compared to New York City's other four boroughs, and with the launch of School of Rock Recording Studios (www.sorstudios.com, http://sischoolofrock.com), those kids and others can now learn the ins and outs of recording, engineering and producing without leaving the neighborhood. In addition, artists from Staten Island and throughout the greater metropolitan area and New Jersey can take advantage of the school's recording and mastering services.

Owner Mike Grande at the School of Rock board. Inset: the live room

Owner Mike Grande expanded his operation, originally named the School of Rock, in May 2004, when his students—initially, kids taking guitar, bass and drum lessons—became interested in learning how to record their own music (after Grande began giving them CDs or MP3 files of their lessons). Rechristened SOR Recording Studios in May 2004, with courses added in production and engineering, the facility offers Pro Tools software, Cakewalk SONAR 4 Producer Edition, a Mackie 32x8 console and 24 tracks of Alesis ADAT as its core equipment, complemented by Alesis monitors; a selection of Shure, Sennheiser, Audio-Technica and AKG microphones; and an ample supply of instruments and guitar amps. Mastering services are handled by SONAR 4 and Alesis MasterLink by engineer Anthony Serso. A 20x19-foot live room and 8x8 iso booth accommodate everything from full band tracking sessions to a simple piano/vocal.

With classes in full swing and a stream of Staten Island bands knocking on the door, SOR operates daily, up to 18 hours a day. One of Grande's success stories, 20-year-old Adam Reich even helps manage the school, engineers sessions and teaches guitar. "I started giving him lessons when he was 10 years old," says Grande. "When he first came to me, I was working out of a home studio. Now, he's able to do everything himself—*and* runs the show!"

BEHIND THE GLASS

AFTER 25 YEARS, STREISAND, GIBB INDULGE

GUILTY PLEASURES ENSUE FROM MIAMI TO MALIBU

After 25 years, Barbra Streisand and Barry Gibb reunite for *Guilty Pleasures*, the long-awaited *part deux* to her multi-Platinum smash *Guilty*, which featured Gibb as producer, writer, backing vocalist and duet partner. The approaching quarter-century mark inspired Streisand to reconnect with Gibb, who, again, produced much of the album (Streisand and Jay Landers executive produced), sang two duets and added ample backing vocals.

PHOTO: JAY LANDERS

From L to R: Julio Hernandez (bass), Dan Warner (guitar), Barry Gibb, John Merchant, Barbra Streisand, Doug Emery (keyboardist, programmer), Lee Levin (drums) and Richie Bravo (percussion)

Engineer/co-producer John Merchant, who has worked with the Gibb brothers for more than 18 years, assembled an ace band of Miami-based musicians at Criteria Studios to track, followed by overdubs at Gibb's Miami Beach facility, Middle Ear Studio. Gibb and Merchant then met up with Babs to record vocals at her Malibu, Calif., guest cottage, affectionately called Grandma's House. "It's really charming," Merchant recalls. "The house was built in the 1950s and has a beautiful view of the Pacific, but we had to essentially create a studio."

Merchant rented a 24-channel SSL AWS900 console, a Pro Tools|HD rig, various mic pre's and found the exact Neumann M49 tube mic that Streisand had used on previous projects. Merchant also brought some of his and Gibb's own toys, including the Chandler TG Channel mic pre and Groove Tubes ViPRE tube mic preamp. For the Grandma's House sessions, Merchant recorded from the M49 to the Chandler to Apogee converters into Pro Tools. "No EQ, no compression, just flat to tape," he says.

Streisand and crew then moved to—where else—the Barbra Streisand Scoring Stage at Sony Pictures Studios (Culver City, Calif.) to shoot interview and video footage for the DualDisc release, but emerged with a bonus track, as well. "It's a great-sounding room with a beautiful piano," Merchant says. "The song ["Letting Go"] is a simple piano/vocal. Barbra said, 'Let's do a pass of that!' The first take was magic; now it's on the DualDisc."

Merchant mixed the album at Middle Ear, but *not* on its Neve Capricorn. "We recorded at 96k; the Capricorn's maximum sample rate is 20-bit/48k," he says. "We ended up mixing on the same AWS900 we used in Malibu! It's pretty cool to mix an album on a board light enough to ship in a road case."

INDIE BUZZ

IDAHO SOUND SOLUTIONS
BRAD KEELER MULTITASKS

Vocalist/multi-instrumentalist Brad Keeler (pictured) completed his latest CD, *Anachronistic Blues*, at Sound Solutions in Spirit Lake, Ida. During the sessions—engineered and co-produced by Steve Izzi—Keeler broke out the guitar, banjo, mandolin, jug bass and washboard.

DIESTRA HEATS UP MIAMI
D.I.Y. BAND HITS CRITERIA

Session drummer Paul Votteler lays down Diestra rhythm tracks at Criteria Studios.

Latin alt-rock duo Diestra recorded their second album at Criteria Studios' (Miami) spacious Studio A. Bandmembers Ricardo and Luis Bonilla co-produced the project with co-producer/engineer Carlos "El Loco" Bedoya (Enrique Iglesias, Paulina Rubio, Missy Elliott). Bedoya, who tracked the session on Criteria's SSL 9000 J Series console, will also mix the album.

TRACK SHEET

George Walker Petit recently mixed sessions for jazz accordionist Victor Prieto at Manhattan Center Studios' (New York City) Studio 4. From left: Halsey Quemere (assistant engineer), Petit and Victor Prieto

NORTHEAST

Bennett Studios' (NYC) **Dae Bennett** mixed stereo and 5.1 versions of **Trey Anastasio's** new DualDisc album. Meanwhile, **Rob Thomas** produced a track for **Rusty Truck**, and **Vanguard Jazz Orchestra** mixed their latest with engineer **Gary Chester**...Artist **Susan Cagle** and producer **Jay Levine** locked out **Cutting Room's** (NYC) Studio A, tracking with engineer **Kyle Kelso**...**Avatar** (NYC) welcomed **Liz Wright**, overdubbing with engineer **Kevin Killen**; the ***Avenue Q*** cast recording for the Wynn Las Vegas premiere with engineer **Jason Stasium** and producer **Steve Oremus**; **Jim Campilongo** overdubbing with producer **Russ Titelman** and engineer **Anthony Ruotolo**; producer **Luke Gottwald** tracking songs for **Pink** with engineer **Ross Petersen** and rapper **Matisyahu** overdubbing with producer **Jimmy Douglas**...Prior to their merge with Right Track, **Sound on Sound's** (NYC) longtime locale hosted **50 Cent**, mixing his movie soundtrack with producer **Sha Money XL** and engineer **Pat Viala**; **Labba** mixed with **Grown Men** and **Brian Stanley**; **Chico Hamilton** tracked with engineer **Chris Fasulo**; **Marcos Hernandez** mixed with engineer **Doug Wilson**; **Dr. John** mixed several projects with engineer **Ray Bardani**; **BIG** recorded vocals with producer **Sean C.** and engineer **Dave Hyman**; and **LL Cool J** recorded vocals with **Keezo Kane** and **Guru**...**Eddie Ojeda**, lead guitarist from Twisted Sister, enlisted metal mayhem in NYC's **Beatstreet Productions** to record his first solo album. The all-star hard rock band included **Ronnie James Dio**, **Dee Snider**, **Joe Lynn Turner**, **Rudy Sarzo** and **Joe Franco** on drums. Franco and Ojeda produced the project; **Nick Cipriano** engineered.

SOUTHEAST

Former Buddy Holly backup singer **John Pickering** contributed to songwriter **Sonny West's** new album, recorded at **SugarHill Studios** (Houston) with engineer **Andy Bradley**. Bradley then recorded **Guitar Shorty's** six-string for **Calvin Owen's** new album...Piety Street Studios' (New Orleans) **Drew Vonderhaar** and producers **Mark Bingham** and **Doug Petty** recorded New Orleans musicians **Dr. Michael White** and **Kermit Ruffins** for a Nonesuch Records Katrina benefit album...**CakeMix Recording** (Dallas) worked on the ***Monster Garage*** and ***American Chopper*** series for the Discovery Channel, as well as the new Sci-Fi Channel reality series, ***Master Blasters***, for which they provided ISDN and voice-over services...Producer **Manuel Seals** and engineer **Ralph Cacciurri** wrapped up the **Brooke Hogan** (the daughter of Hulk Hogan) session at **Doppler Studios** (Atlanta)...**Rob Tavaglione** produced and engineered the forthcoming CD from **Ultralush** at **Catalyst Recording** (Charlotte, NC); he later engineered demos for bands **Beautiful Evil** and **Full of Gravity**...**Nikolas Marzouca** mixed the previously unheard Bob Marley song, "Slogans" (featuring Eric Clapton on guitar), for the new Marley singles collection in the Cabana at **Circle House Studios** (Miami).

SOUTHERN CALIFORNIA

From fear to faith: **Fear Factory** mixed their latest album at **Skip Saylor Recording** (L.A.) with producer/mixer **Toby Wright**, while **Faith Evans** mixed a new holiday album with co-producer **Todd Russaw** and engineer **Jaymz Hardy Martin**. Also at SSR, new Universal signees **Astra Heights** mixed their debut with producers **Stacey Jones**, **Paul David Hager** and **Bill Lefler**...**Dwarf Village Studios** (L.A.) had **Tim Bomba** come by to touch up final placement of songs for *Crazy*, a film inspired by the story of '50s/'60s Nashville guitar legend Hank Garland, executive produced by **Steve Vai** and former Guitar Center Inc. entrepreneur **Ray Scherr**.

NORTHERN CALIFORNIA

Nettleingham Audio (Vancouver, WA) engineer **Kevin Nettleingham** mastered releases for PDX artists **Graham & The Crackers**, **Milepost Forty**, **Dave Stoops**, **The Rhythm Dogs**, **Panzergod**, **Silentist** and **Dan Gicker**. He also tracked, mixed and mastered **Alfredo Muro's** new Brazilian music CD...**The Samples** finished tracking their upcoming release, *Rehearsing for Life*, with producer/engineer **Matt Boudreau** at **Broken Radio Studios** (Emeryville, CA). Mastering was handled by **Michael Romanowski** of **Paul Stubblebine Mastering** (S.F.). ■

Send your session news to hjohnson@primediabusiness.com. High-resolution photos encouraged!

L.A. GRAPEVINE FROM PAGE 130

partnered with people in video production who have a similar philosophy, so we're totally capable."

That fact has made 5.1 a go-to place for projects in need of a fast turnaround. Included in that impressive run is *Something to Be* by Matchbox Twenty vocalist Rob Thomas. The DualDisc, 252,000 of which were sold in the title's first week, features a surround mix by Lux, who is well-known for both his surround mixes and his advocacy of the format.

"We've evolved with surround sound," Lux observes. "Instead of seeing the listeners as being in the audience as you do with a front-loaded mix, we put them up onstage and wrap the music around them. When we did the Janet Jackson compilation project, *From Janet. To Damita Jo*, Janet told us she had never heard her music sound that way before; she was really excited about it. We hear that from many of the artists we work with, and for me, that's the ultimate thrill. To be able to take them somewhere they haven't been before and see them get turned on to the possibilities. It's extremely rewarding."

And now, it's time to say goodbye to all our companeeee...M-I-C- (That's a microphone, right?) ...K-E-Y (Why? Because we *like* you.) Okay, I'm getting a little carried away. But I'm in a quandary because, hard as it is for me to write these words, this is my last "L.A. Grapevine."

It was 1994 when I began writing this column and what an amazing 11 years it's been since then. Y'all agree, right? Because since the '60s, the audio industry—for close to 30 years—has hardly changed. You had musicians playing together in a room, tape machines of one sort or another, microphones, cables, etc., etc., etc. Then came the seismic shift. What started in the mid-'80s with a few digital drum machines, keyboards and effects gained speed and processing power like a Cat-5 hurricane. Soon, it was more like an avalanche, changing our business and our lives with a force akin to the Industrial Revolution of the 1800s. So yes, indeedy, for me, these past 11 years have been a most interesting time to be an observer and chronicler of the story.

From recording and live sound, to film, television, games and equipment, I've covered it all. I've loved learning and writing about technology and techniques, but what I've loved most of all—and what keeps me in this business—are the people who devise the technology and techniques. Recording people are simply the best: dedicated, smart, passionate (and cynical!) with—best of all—damn good senses of humor.

My life has been enriched by all of the people whom I've written about and all of the people I've worked with, especially at *Mix*. Tom Kenny, George Peterson, Blair Jackson, Sarah Jones—there with me from the beginning: encouraging, inquiring,

L.A. editor Maureen Droney. Our loss is the NARAS P&E (Producers & Engineers) Wing's gain.

pushing and upholding the standards of editorial excellence in a time when that's no easy job. And to the rest of the wonderful *Mix* staff: Hats off to all of you.

The bottom line is gear is good, but people are better. I've learned that lesson well during the past 11 years. We in the music and sound recording business are a special community. And in these difficult and changing times, a sense of that community is more important than ever. This I truly believe, which is why, from now on, you'll find me at The Recording Academy (The National Academy of Recording Arts and Sciences) working with and for producers and engineers. I encourage you to join me there and at SPARS and at AES and at any of the organizations that represent who we are. Music and sound are important; the people who work with them are important. Working as a community, we can keep letting the world know that. ■

So, got L.A. news? E-mail me at maureen.droney@grammy.com. Stay in touch!

NASHVILLE SKYLINE FROM PAGE 131

the Battleground Academy Summertime Songwriting and Performance Clinic (with Kids on Stage), was geared toward kids between the ages of 11 and 17 who had demonstrated some proficiency playing, singing or writing.

Cotton helped make Lloyd's challenges with Battleground's first year of camp be a bit smoother. "Gene has been doing Kids on Stage for 10 years and he does an amazing job," says Lloyd. "Gene is so organized and I was surprised at how many areas Kids on Stage covered: music, songwriting, performing, acting, choral work and jazz band. Since this is our first year at Battleground, we tried to keep it small."

In addition to Lloyd, Cotton and myself, other teachers include Walter Egan, Mark Horn, Brent Ware and Thom McHugh. It was held at this outrageous facility called The W, which was part industry showcase/video complex and part rock history museum. Almost every room contained some vintage or historic gear. There was a room with one of Jimi Hendrix's amps, a John Bonham drum set and Lynyrd Skynyrd gear. There was a Kustom amp room, which literally had two walls of stacked Kustom amps 20 feet high—floor to ceiling—while every wall that didn't have amps and guitars hanging on them had loads of vintage concert posters.

This was the environment in which we worked, and while the kids may have had an inkling of what surrounded them, we old Baby Boom–era rockers were in heaven.

Another band camp that has been quite successful in the Nashville area, the Southern Girls Rock & Roll Camp (SGRRC), focuses on aspiring female rockers and songwriters. Founded in 2003, it was inspired by the Portland, Ore.–based Rock 'n' Roll Camp for Girls and began as a project of the feminist student organization Women for Women with the June Anderson Women's Center at Middle Tennessee State University. Since then, it has grown into an independent, off-campus business with no organizational affiliation to any group at MTSU. Courtney Wood and Anna Fitzgerald are SGRRC's directors.

Volunteers for this year's summer program included Holly Gleason, Beth Cameron, Mary Mancini, Cosette Collier and Kelly Anderson, as well as a surprise performance by the Indigo Girls, who were recording at Blackbird Studios during camp week.

In addition to music lessons, the camp provides workshops on recording, songwriting, music journalism, photography, screen printing and D.I.Y. arts and crafts. Campers learn how to promote their bands, book shows, create their own T-shirts and merchandise, publish songs they have written and record their own music. The empowerment workshops

encourage campers to learn new skills and become self-sufficient musicians and well-rounded individuals. As with Kids on Stage, participants form bands and rehearse for a big showcase for parents and friends at the end of camp.

Finally, one of Nashville's best and longest-running music schools for kids ages 7 to 18 is the W.O. Smith Nashville Community Music School (www.wosmith.org). It was founded in 1984 by musician and teacher Dr. William Oscar Smith. A professor at Tennessee State University and a member of the Nashville Symphony Orchestra, Smith dreamed of a nonprofit school where children from low-income families would have high-quality music instruction. This school is a fulfillment of that dream.

To be accepted, students must qualify for the reduced or free lunch program in the Metro schools. Then, for the nominal fee of $0.50, the more than 350 students currently attending receive instruction from members of the all-volunteer 100-member teaching staff.

Throughout the years, the Nashville music community and related businesses have done much to support W.O. Smith. "We've received quite a bit of support from Wynonna Judd and Rondal Richardson from her management team," says executive director Lynn Adelman. "Also, producer Paul Worley taught guitar here for several years."

Each year, the school holds a hugely successful fundraiser called The Birdhouse Thing(www.thebirdhousething.com)where volunteers build about 150 birdhouses and give them to recording and visual artists, area architects and music industry folks to decorate. Then they are auctioned off. "We had an out-of-pocket cost of about $2,500 last year and we raised $50,000," says Adelman. "This will be our fifth year to do this project. The next one will be March 9, 2006."

Anyone reading this who loves to mentor and hasn't checked out these programs—or those in your city—should do so. These programs are always in need of good people to become involved. Adelman's experience drives that point home: "I was a musician all my life and had a desire to work in the service field. I started teaching private piano here at W.O. Smith in 1984 while I was in graduate school, and my piano instructor advised me to or I would fail her class. I did, and I then I got hooked. It is easy to get hooked over here. It is really a fun place to be. It's a calling." ■

Send your Nashville news to mrblurge@mac.com.

NEW YORK METRO FROM PAGE 131

interior belies the scientific approach that Martin and Dunn took to the system's design, which was undertaken with the utmost respect for live psychoacoustics and the artistic integrity of the venue's performers. "We talked about the goals of creating accurate tone from the front of the room to the back," says Martin, "and came up with a sound system that comprised the best JBL components available from lows to mids to highs. There was a 16-channel Soundcraft Series 2 mixing board, and we also included an Ampex 16-track 2-inch deck. The idea was a completely accurate environment for the bands to play in and for us to mix. The bands would be in the same acoustic space as the mixer—in fact, the levels we ran were so high that the mix backed up onto the stage monitors! The approach was sort of similar to what the Grateful Dead was trying to do. They had their sound system behind them at one point, mics right next to each other, slightly out of phase so they would be in the same acoustic space as the audience and the mixer.

"This sounds like crazy idealism, but it's important: We were nuts trying to create and record. We were into a dynamic. Every show was an adventure. We would record it with the 16-track, then later on that night, after we closed at 3 or 4 a.m., we would mix the tracks on the sound system or JBL monitors we'd set up on chairs. We discovered a band could evolve much more quickly if we had the 16-track of them playing. We could isolate everyone's contributions, and so the pace and evolution of their playing was much faster for obvious reasons. Cutting, we had strips of tape hanging all over the place. My personal record was three-and-a-half days of shows without mixing and without sleep, but I must say that just before I passed out, I was doing punch-ins with complete accuracy!"

The speakers, cabinets and horns that Martin, Dunn and company set up in the final year of Gerald Ford's presidency remain intact and fully functional at CBGB, meaning that until a judge decides otherwise, an earful of history is just a cover charge away. Arrive onsite, squint really hard at the ceiling around the stage, and as your eyes adjust to the dark, you'll start to see the loud, loud monster they created. For the long-throw, lows are handled by five boxes (originally six) holding three 15-inch EVM 15L drivers; low mids come from six boxes with 12-inch JBL drivers; high mids come from two (originally three) Community M200 2-inch drivers on 90-degree JBL horns; and highs from one B&C DE45 1-inch driver on a JBL horn. The near-field highs come from two B&C DE750 2-inch drivers on 120-degree JBL horns, while the highs mid-field get the same drivers on 90-degree JBL horns. The original crossover setting is lost to all time, but the current ones are handled by a dbx DriveRack 480. The first Crown DC300A amps have been replaced by Crown C2000s and C1000s and Crest V900s.

For those who haven't experienced it in person, the result is clear, accurate sonics from top to bottom, with the potential of decibel and sound pressure levels so high that they can literally rattle the earplugs inside the ears of those smart enough to have them. "It's perfect for powerful rock 'n' roll," Martin states. "We were just making sure in the hall that you heard all of the elements of the sound. If you look at it, you've got a wide variety of horns all over the place, but each one carefully directed and tuned. If you're here for a concert, you can walk from the back of the room to the lip of the stage and hear the full range of sound with excellent tone."

Kristal points out that the rabid audiences weren't the only ones who got off on the powerful system. "It's not only the clarity, but there was a real energy, and I think this makes a band want to play better," he says. "They feel they did a great show. Even if it isn't their best, it felt good. The most important thing is the room is good and engineering the system to fit the room is crucial. Norman, Charlie, Mark Morris and whomever else made a perfect design for this room. Actually, it was designed for something four times as big, which provides a lot of dynamic range and headroom. One thing I must add is that we kept it up all the time. We test it quite often and make subtle changes every month or two."

But you can only go so far in analyzing what makes a place like CBGB sound so amazing—the true spirit of rock thrives in this frighteningly dim music Mecca and that's that. "It's idealism," Martin concludes, "that's really what this place is all about. The Buddhists talk about the hole in the center of the wheel, and without that void things can't function. In some ways, CBGB was that unconditional void that originality could flow into and out came great sound and great bands."

Martin dedicates his interview to the vision and integrity of Norman Dunn. Special thanks to Alvin Robertson for his role in facilitating this article. ■

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—FROM PAGE 30, THE MASTERS COME ALIVE

MIDI controller commands—to carry the extra bits for the note commands. "An ordinary sequencer couldn't keep up with this," he says, "because it would have no idea how to deal with these controllers."

Because of all the extra data, the data stream becomes too heavy for an ordinary MIDI cable to carry without encountering timing problems. So Walker doesn't bother: "We communicate by loading files onto the piano's hard drive and their computer is connected directly to the piano mechanism. As far as we've been able to see, there is no limitation on how fast the computer can send data."

The other side of the equation is extracting the performance data from the recordings. "We read all the papers about this from the past 20 years," says Walker, "and we realized the ways to get at this problem were not only signal processing paths. We have written a lot of software, but we viewed this as an engineering process. What are all the things we have to do to get 100-percent accuracy? Some of them need human hands, human assistance.

"In the early steps of the analysis, we used musicians to determine the right dynamic range. Early recordings have narrow dynamic ranges, so we have a professional pianist decide what the range would be if it were played now. We don't quite know a way to do that automatically yet. Then we have DSP software go through the entire recording and look for everything that might be notes. We have models of what piano notes look like, but it's a very liberal model; it also finds reflections off the wall and harmonics. But everything that isn't a solo piano, like recording noises and mechanical squeaks, vanishes. Then we do more passes to fit three-dimensional models we have of piano notes against these, and that distinguishes real notes from harmonics.

"We do a pedaling pass. If all the dampers are up, the harmonics and the total picture of the sound look totally different. But we don't worry about half-pedaling. The only thing that counts is when the hairs of the felt touch the string.

"I look forward to the day when the process is all automatic, but I don't expect it very soon, especially because people know the recordings. So we do the best we can with the computer and then we do touch-ups with really good ears. We never consult with a score before we start—that was an early design point. People don't play what's in the score—they miss notes, they add extra notes. [French pianist Alfred] Cortot adds an extra 10 percent more notes. And when you're working with jazz improvisations, there are no scores. The historical evidence is the recording. If a note is there, it will affect the overtones and the mappings. But if we can't detect it, then we can't detect it.

"We do use a score at one point: When we're 98 percent done, we have the piano play and we sit and listen, and then it's nice to have the score to mark things that aren't accurate—something we can circle with a red mark and say, 'That note is not right. Why?' You should see our scores—they have the weirdest markings you can imagine. But even if we don't have scores, since we're basically in MIDI, we can dump it into Finale or Sibelius and print it out and look at it that way."

Testing the output of the process is something else that Zenph needed to develop. The group has a tightly temperature- and humidity-controlled room for their pianos, and the instruments are maintained to a degree most concert halls would envy. "Our first tendency was to sit in the room with the piano, and when we heard something we didn't like, we'd go, 'Oh that's not quite right,'" Walker says. "But we learned that was wrong. We're making the piece sound

like how *we* want it to sound, but there's no historical evidence that supports that.

"Instead, we make a new mono recording, one mic in the room, as close as we can to the original recording, and then we play those two recordings at the same time, one in each channel. You can't match the .WAV files, but you can analyze the timings. The thing that tells your brain 'right or wrong' more than anything else is the timing of what's played. So you sit there with headphones, and when the two ears match, that's the best way to analyze. Wrong notes can be a lot of things: The touch isn't right or the note is the wrong duration. But if it's right when you listen this way, it must be right, whether you like it or not.

"When you just listen to the Disklavier Pro by itself play Glenn Gould's *Goldberg Variations*, you wonder whether he played it that way because it sounds a little ragged. But when you compare the two recordings, they match. That was a real revelation. I didn't sleep well the night we figured that out—it was such an unexpected step."

As anyone who heard Zenph's renditions at AES of Gould, Cortot and Tatum (from a recording made by a fan on a portable reel-to-reel deck at a cocktail party) will agree, the re-creations are uncanny. The timings and variations in the keystrokes are so subtle, it's easy to imagine the pianist is in the room, his fingers pushing the keys down. Still, Walker was less than thrilled with the conditions in New York, which illustrate one of the limitations of this technology. "If you play, say, a [Vladimir] Horowitz file on an instrument that's not calibrated or tuned, it won't sound authentic," he says. "With all the rain we had during the show, the piano was having a very hard time. We almost closed the demo room the last day of the show because four days of hard usage in that weather had taken a toll on the piano."

Convincing others of his work's value is something Walker realizes is not going to be simple. "We have to establish an extremely high threshold," he says. "People know what the original performances sound like, and if our re-recordings aren't identical, they will know that's not how Horowitz played."

And once all the technical hurdles are overcome, there's still the question, what's the point? Walker is looking at a few areas in which he thinks his process can have an impact. "We're working right now with the record companies," he says. "We take their old recordings, do the conversion and hand them back as high-res MIDI files. Then they can make a new recording.

"We're new and we don't want to mess up," he continues, "so we're starting with the copyright holders. No artist or studio contracts anticipated this technology, so we have to be careful. We're in the midst of putting together our first contract right now," which will involve recordings of a famous pianist from times past whose name Walker won't reveal.

He also sees its use in analyzing jazz performances. Every performance of a tune, even by the same artist, can be completely different from every other. Jazz transcriptions are usually done laboriously—often long after the fact—by a fan, and then you are left with a written record of only a single performance. "We don't have comparative scores of Art Tatum playing a song five different times," he says, "but now we could. A colleague of ours at Duke University says that this will make jazz a much more respected academic field because we'll have scores to compare, to mark, to study, as opposed to just listening to recordings."

Another use is for musicians who don't perform well in a studio setting. Says Walker, "He can play it at home, where he's more comfortable, on his upright or whatever, and then the producer can bring it in and redo it in the studio.

"The key point," he summarizes, "is that now the performance can be separated from the medium," which, of course, has been the point of MIDI all along. But today, Walker is taking that idea to a new level. "We've all adopted word processing; the text can be separate from the book. This is the same story. So forever on in history, as the medium improves, you can get better audio recordings. It's the biggest perception hurdle that we have with people: If a recording was made in 1930, then does the way it sound have to be from 1930? That's not true anymore."

Walker also sees the technology going beyond pianos, although that would present a whole new set of challenges. "Things that are plucked or struck are easier to do and distinguish than things that are bowed or blowed," he says with a laugh. "We could see doing a jazz trio, for example, but we don't yet have a high-resolution bass. So we need to be commissioning instruments,. We may be able to do it with robotics, but probably the virtual instruments will get there first."

And how about transcribing a symphony orchestra? "Orchestral stuff will happen in our lifetimes. It's a matter of computing power and a whole lot of equations. Our ears can sort out all that information, so we will eventually be able to do it with computers. People have been telling us it can't be done, but we're engineers, we can do this." ■

Paul Lehrman never plays anything the same way twice, even if he wants to.

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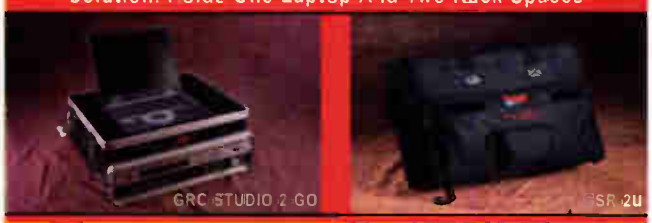

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The Glyph GT103 offers many advantages for large-scale multitrack recording, including hot-swap portability and convenience. Specifically designed recording scenarios that require multiple drives, the GT103 can be configured with three FireWire hot-swap GT Key drives of any capacity. Using Glyph's proprietary Integrity™ hot-swap technology, you can easily shuttle content to other GT Series enclosures. To keep your studio quiet, GT Keys incorporate sound-dampening composite metal technology in their frames. Includes three-year warranty, plus overnight advance replacement warranty in the first year for GT Keys.

On-demand plug-in processing.

How do you conserve precious CPU cycles for the demands of multitrack recording, but also run all of today's latest plug-ins and virtual instruments? The Muse Research Receptor is a dedicated hardware-based plug-in player for your favorite VST software. With 16 channels to run virtual instruments or effects, a built-in MIDI interface and a versatile complement of digital and analog I/O, Receptor is the ideal way to run plug-ins while keeping your host computer running smoothly. Control everything from the front panel, or simply connect a monitor to the back. Visit museresearch.com to view demos by Dream Theater's Jordan Rudess and to learn about Receptor's new UniWire™ technology, which provides MIDI, audio, and remote control between Receptor and your computer via a single Ethernet cable. Receptor provides the ultimate in performance, stability, and sonic performance.

Waves distributed processing.

For large-scale multitrack recording systems, it is good practice to offload plug-in processing from you host computer. The Waves APA-44M delivers on-demand Waves processing to your MOTU native desktop studio via standard Ethernet. Open your existing Waves plug-ins as usual in Digital Performer via the new Waves Netshell™. But now you can run up to 6 Waves IR-1 Convolution reverbs at 44.1kHz at once, and save your CPU power. Need more Waves processing? Just add another APA-44M with the snap of an RJ45 Ethernet cable. It's that simple. For extreme processing needs, connect up to 8 units to your network. The APA-44M is equally at home connected to a laptop, desktop or both. Just transfer your Waves authorized iLok. You can even share a stack of APA-44M's among several computers across the Waves Netshell network. The APA-44M ushers in a new era of state-of-the-art, distributed-network Waves processing for your MOTU multitrack studio.

Power conditioning

A large-scale multitrack studio is an investment. Protect that investment — and get the best possible performance from it — with the Monster Pro 2500 and Pro 4500 PowerCenter. Much more than just a "surge protector", both devices use Monster's patented Clean Power™ filter circuitry (U.S. Pat. No. 6,473,510 B1) with separate noise isolation filtered outlets for digital, analog and high-current audio components. The result is high quality sound that's free from hums, buzzes and other power line artifacts, revealing all of the rich harmonics and tone in your recordings. Get All the Performance You Paid For™.
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The groove.

Spectrasonics Stylus RMX v1.5, the award–winning "groove standard", gets better and better with new features like "Chaos Designer™ Buzz" for stuttering edits, 500 incredible new categorized Multi grooves and 250 slamming new Kits. It's even easier to learn RMX now with the new Reference Guide/Help System and hours of brand new tutorial videos – including one specifically for Digital Performer users!

The controller.

Digital Performer captures every nuance of your MIDI performance. The M-Audio Keystation Pro 88 is an 88-key hammer-action USB powered MIDI controller delivers fine-tuned response to satisfy even the most demanding players. Add four zones, a stunning set of MIDI-assignable controllers all in a compact 40 pound package, and you have the most comprehensive product of its kind!

The control room.

The PreSonus Central Station™ is the missing link between your MOTU recording interface, studio monitors, input sources and the artist. Featuring 5 sets of stereo inputs (3 analog and 2 digital with 192kHz D/A conversion), the Central Station allows you to switch between 3 different sets of studio monitor outputs while maintaining a purely passive signal path. The main audio path uses no amplifier stages including op amps, active IC's or chips. This eliminates coloration, noise and distortion, enabling you to hear your mixes more clearly and minimize ear fatigue. In addition, the Central 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 process and ease mixing and music production.

Mastering & restoration.

Your DP mastering and processing lab awaits you: BIAS Peak Pro 5 delivers award winning editing and sound design tools, plus the world's very best native mastering solution for Mac OS X. With advanced playlisting. Superb final-stage processing. Disc burning. Plus PQ subcodes, DDP export (optional add on), and other 100% Redbook-compliant features. Need even more power? Check out our Peak Pro XT 5 bundle with over $1,000 worth of additional tools, including our acclaimed SoundSoap Pro, SoundSoap 2 (noise reduction and restoration), Sqweez-3 & 5 (linear phase multiband-compression/limiter/upward expander), Reveal (precision analysis suite), PitchCraft (super natural pitch correction/transformation), Repli-Q (linear phase EQ matching), SuperFreq (4,6,8, & 10 band parametric EQ) and GateEx (advanced noise gate with downward expander) — all at an amazing price. So, when you're ready to master, Peak Pro 5 has everything you need. It's the perfect complement to DP.
Or, perhaps we should say, it's the perfect finishing touch.

Call the MOTU system experts.

The faders.

Imagine the feeling of touch-sensitive, automated Penny & Giles faders under your hands, and the fine-tuned twist of a V-Pot™ between your fingers. You adjust plug-in settings, automate filter sweeps in real-time, and trim individual track levels. Your hands fly over responsive controls, perfecting your mix — free from the solitary confinement of your mouse. Mackie Control delivers all this in an expandable, compact, desktop-style design forged by the combined talents of Mackie manufacturing and the MOTU Digital Performer engineering team. Mackie [illegible] brings large-console, Studio A prowess to your Digital Performer desktop studio, with a wide range of customized control features that go well beyond mixing. It's like putting your hands on DP itself.

The monitors.

The Mackie [illegible] are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's wide, deep and incredibly detailed. Low frequencies that are no more or less than what you've recorded. High and mid-range frequencies that are clean and articulated. Plus the sweetest of sweet spots. Whether it's the 6-inch HR-624, 8-inch HR-824 or dual 6-inch 626, there's an HR Series monitor that will tell you the truth, the whole truth, and nothing but the truth.

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BY GABE SHADID

Spectrasonics Stylus RMX

Keeping Your Creations in the Groove

The Stylus RMX real-time groove module combines maximum flexibility with an emphasis on sound quality when working with looped-based audio. Note, I didn't say drums because you can import anything into RMX and go crazy.

DRUMS ARE JUST THE BEGINNING

Anything in REX file format can be converted into RMX's SAGE format using the included SAGE Converter application. Not only will these imported elements automatically sync to your current tempo, but because you're dealing with fairly short slices of audio, pitch shifting is very effective and RMX does it all in real time.

IMPORTING SINGLE HITS

Take the individual hits you want to import and lay them on a single audio track in any audio editing program. Bounce the entire string of hits into one long audio cue. Then, using ReCycle, place a slice in front of each hit in this long file and save it as a REX file. Use the SAGE Converter to import the REX file.

Once in RMX, when you select this imported element, make sure you're in Slice Menu MIDI mode and then each hit will reside on its own key. This is a great way to archive cool sounds from one project for quick use in later sessions. And with all of RMX's sound-shaping possibilities, you can make the sounds be unique very quickly each time you use them.

EDIT GROUPS ARE YOUR FRIENDS

One of the most important, yet least-understood, aspects of Stylus RMX is that Edit Groups work within the context of Suites, not Elements. Edit Groups do not get lost or reset when switching from Element to Element within a Suite. This becomes extremely powerful when you build your own Favorites Suites.

Start by finding 10 grooves that you think will play well together. Add them to the Current Favorites Suite using the Browser Page's Add button. Now, with 10 grooves in one Suite, use Edit Groups to custom-tweak several grooves within this Suite all on the same Part. Start in Slice Menu mode and choose the top groove in the list. On the Edit page in the Edit Group Assign menu, choose "Assign (1 and 3) Downbeats." Do something obvious, like pitch shifting the Downbeats up +24 using the Coarse Pitch slider.

Now, go back to the Browser page and choose the second groove in the list. Return to the Edit page, and in the Assign menu, choose "Assign (2 and 4) Backbeats." Pitch-shift these backbeats down -24. Notice that both Edit Groups are in the Edit Group list. Now switch to Groove Menu mode; each complete groove will reside on its own key.

You can play all of the grooves together on the keyboard at once with all the tweaks still intact. Remember, you still have seven free parts in which to load more content. In Slice Menu mode, you can even add slices of several different groove elements to the same Edit Group using the Add/Remove Slice feature.

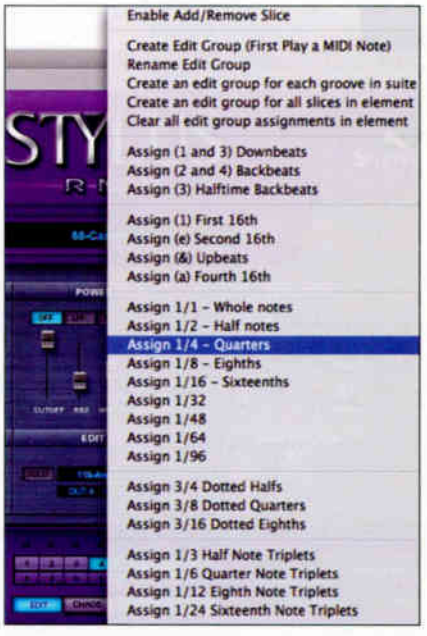
SIMPLIFY A BUSY GROOVE

In the Edit Group Assign menu on the Edit page, choose "Assign 1/8-Eighths." Switch back to the Main Edit Group and mute it. If the groove sounds a little staccato or choppy, then move the H, D and R sliders up to increase the slices' length in the AMP Envelope section and the choppiness should disappear. However, if you increase the H, D and R times too much, the polyphony is exhausted, as each slice has such a long duration and slices can get missed.

SHORT TICKING PERCUSSION

Sometimes, some choppy, short, ticking percussion can make a groove move along nicely. This is easy to do. On the Edit page in the AMP Envelope section, drag the H, D and R sliders lower to shorten the slices' duration. This results in a wonderful staccato percussion that can be a great background track to another more prominent drum line. Or, you can take this idea one step further with Edit Groups: Leave the downbeats and backbeats at full duration so that they maintain their original sound, but shorten all the surrounding slices.

Try this: Begin with "90-LillGirl Combo" from the Core Library. In the Assign menu on the Edit page, choose "Assign ¼-Quarters." Switch back to the Main Edit Group. Once on Main, move the H, D and R sliders to the following values: H, 0.003; D, 0.009; and R, 0.004. Originally, the hi-hats and other offbeat slices of "90-LillGirl Combo" were very prominent; now, they are much more subtle.



The Assign Menu in Stylus RMX lets users harness the features of Edit Groups.

FATTER DRUM KIT SOUNDS

Create really fat sounds in Kit mode by layering elements of the same kind across the parts. For instance, you could load all eight parts with different snare kit modules. All eight parts would trigger from the same two keys for a huge, layered sound. Each snare sound can still be tweaked separately from the others, as they all reside in their own parts. For this to work, ensure that the MIDI mode is set to "Kit CH 1." This makes all parts respond to incoming MIDI channel 1. ■

Composer/engineer Gabe Shadid co-owns L.A.-based trailer music company Epic Score with Tobias Marberger. Visit him at www.epicscore.com.

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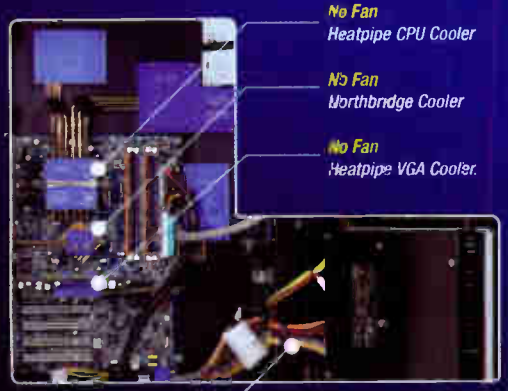

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