WWW.MIXONLINE.COM AUGUST 2004

MIX

PROFESSIONAL AUDIO AND MUSIC PRODUCTION

CONSOLES

MEGA-FEATURES, *mid-price*

14 HOT MIXERS
for the pro facility

SWEET *& LOW*
Tips for Recording Bass

BLUETOOTH *OR WiFi?*
Remote Sound System Control

VELVET REV⊙LVER
Takes It Live

A PRIMEDIA Publication
$6.99US $8.99CAN

08>

0 09281 01817 9

Galaxy Studios, Belgium

World Radio History

DIGITECH GNX4 MULTI-MODELING DIGITAL GUITAR WORKSTATION

USB Audio/MIDI Interface
Stream audio and MIDI to and from your computer via the integrated USB Audio/MIDI interface.

Expression Pedal
Real time control of effects parameters, volume, and wah.

Eight-Track Digital Recorder
Hands-free recorder makes capturing your musical ideas quick and easy.

Stompboxes Stompbox modeling features ten of the world's most popular distortion pedals.

The DigiTech® GNX4 Guitar Workstation

Guitar Cabinet and Amp Multi-Modeling
Unlimited user amp+cabinet creation thanks to DigiTech's exclusive Warp knob.

Direct Box
Run direct to the front of house mixer with selectable Speaker Compensation.

Guitar Tuner
Built-in tuner when you need it.

A small fortune in hook-up cables
No re-patching necessary.

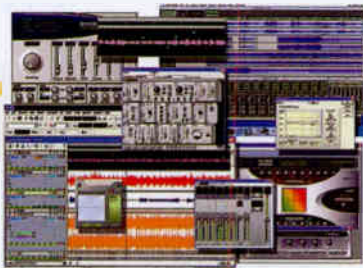Made in the USA ■ Designed by fanatic, guitar-playing engineers in the Rock 'n' Roll underground of Salt Lake City ■ E-m

H A Harman International Company

Guitar Workstation™?

Multitrack Recording Software
Professional Mac®/PC recording and editing suite featuring Lexicon® reverb plug-in.

What happens when a bunch of fanatic, guitar-playing engineers combine the world's most advanced modeling guitar processor and a studio full of equipment into a single integrated package? You get the ultimate guitar player's

MP3 Player
Play along with your own backing tracks or practice with lesson downloads.

USB CF Reader
Built-in card reader for easy transfer of files to and from your computer.

Drum Machine
Over 100 rhythms and 8 different drum kits. Even play your own MIDI patterns.

Mic Preamp High quality dbx® mic pre with 48V phantom power accepts both dynamic and professional condenser mics.

Mixer Flexible mixing of your recorded projects and routing of all inputs and outputs.

tool: **The Guitar Workstation**™.

They jammed several thousand dollars worth of gear into a single floor unit. But they didn't stop there. Since when you're playing, you have your hands full, they also designed an intelligent, *hands-free* user interface to make it all work the way a guitar player thinks. It's there at your feet ready to record when inspiration strikes.

Not only is a Guitar Workstation™ a great tool in the studio, it can also follow you on stage and be your entire live rig as well.

Would you expect anything less from DigiTech®, the world's leader in guitar modeling processors?

Discover all the things you can do with a Guitar Workstation™ by e-mailing or calling for your free GNX4 APPLICATIONS GUIDE. But, if you've already seen enough, head on down to your local DigiTech® dealer and experience The Guitar Workstation™ for yourself.

GNX4 Guitar Workstation

- Built-in 8-Track Digital Recorder
- Built-in 24-bit USB Computer Audio/MIDI Interface
- Built-in General MIDI Drum Machine
- Built-in MP3 Player
- Built-in USB Compact Flash Card Reader
- Built-in 8 x 8 x 4 Mixer
- Built-in dbx® Mic Preamp w/48v Phantom Power
- Built-in Direct Box with Active Speaker Compensation
- Hands-free Recording
- 24-bit A/D/A Converters
- GeNetX™ Multi-Modeling Processing provides unlimited amp and cabinet models

Included Software:
- Multi-track recording/editing software: Pro Tracks™ Plus for PC and BIAS® Deck™ 3.5 SE for Macintosh®
- Lexicon® Pantheon™ Reverb Plug-in for the PC and Mac®
- Cakewalk™ Pyro Express CD burning software for the PC
- DigiTech® X-Edit™ Editor/Librarian

nfo@digitech.com ■ www.guitarworkstation.com ■ 801.566.8800 **DigiTech**®
The Power to Create

features

On the Cover: Galaxy Studios (Mol, Belgium) features the first API Vision, Neve MMC and SPL MMC1, as well as a Neve VR72 and Chef Dave, who cooks everything from "hamburgers to haute cuisine." **Photo:** Benny De Grove. **Inset:** Steve Jennings.

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

World Radio History

contents

Mix ONLINE EXTRAS

Visit www.mixonline.com
for bonus materials on select
stories in this issue.

World Radio History

Visionary.

"The Vision console combines API's world-famous sound with an innovative way to give our clients virtually simultaneous surround and stereo mixes. Mixing and tracking in discrete analog surround makes Media Hyperium the clear choice for hi-res DVD and SA-CD production."

Herbert Waltl, mediaHYPERIUM, Los Angeles CA 310 891 0006   www.mediahyperium.com

api

www.apiaudio.com 301 776 7879

media
H Y P E r i U M
studios

How About a Little Promotion, Mr. Promoter?

As I write this, it's the July Fourth weekend. Corn is knee-high, but the music touring biz—which should be showing a healthy growth spurt by this time—is not a pretty picture. In fact, the summer of 2004 may end up among the worst touring seasons ever. So far, the big Christina Aguilera and Britney Spears tours have dropped out and Lollapalooza (a surefire hit in years past) flopped out—all from a lack of sales.

Ticket sales are down, so what's up with that? Promoters can point to the economy or a thousand other excuses, but meanwhile, other sectors in entertainment are doing just fine, thank you: CD sales are up, even with the emergence of new platforms for legal downloads; major (and even minor) league baseball is packing 'em in; movies are enjoying a banner year; and video game sales show no signs of slowing. So why the slump in live music shows?

It's certainly not for any lack of artists and the ticket-buying fans who love them. And there's no shortage of great venues or first-rate sound and lighting companies to support the shows. However, is a floor-level seat to see Sting worth $115? Or how about a Who ticket for $190? And once you figure in the parking, a $45 T-shirt and the ticket purchase service charge (I wish someone would clue me in on where the "service" part of that comes in!), your evening of fun could easily set you back $300…$400…or $500—not including dinner or even cheese nachos and a Budweiser. To be perfectly fair, you could opt for a couple of lawn tickets and probably get by for under $100, but the picnic atmosphere loses a lot of its charm when you're sitting a quarter-mile from the stage, watching a video screen, listening to delay towers, and 10 minutes into the show, some drunk spills a bucket of beer on your blanket. "Sorry, man."

Hey, I don't expect the concert experience to return back to what it was like in 1969, when I could plunk down three bucks and catch Santana and the Grateful Dead, or The Byrds and Fleetwood Mac at The Fillmore West. How about a little value added to today's $100 tickets? Tours may be sponsored by Miller Beer or Ford Trucks, but other than some promoter taking in a bunch of cash in exchange for hanging some banners, such tie-ins hardly benefit the consumer.

The concert industry could learn a lot from other industries. Fast food pumps up its sales via promotional giveaways: free action figures, souvenir glasses, etc. Pro baseball has "free hat" days and even $2 bleacher ticket coupons in Pepsi 12-packs. Live theater has done well with half-price day-of-sale ticket kiosks in Times Square, Leicester Square and elsewhere.

Although it's rare, this has happened in live music: Bill Graham Presents was enormously successful in a recent promotion, where a sale of lawn tickets for 60 shows were offered at $20, resulting in 50,000 sales in one day—a million dollars, hardly chump change. Add in the extra parking, concessions and merchandising revenues and the economics come easy: There's a lot more money to be made from a packed half-price stadium than a half-filled house at full-pop. With a little smart thinking and good old-fashioned promotion, a savvy promoter could have SRO venues, which would be good for everybody.

George Petersen
Editorial Director

MIX® MAGAZINE IS AFFILIATED WITH **SPARS** ABM BPA

All in one box.

Logic Pro 6
Music and Audio Production

The most widely used program of its kind for professional music creation and audio production is now more attractive than ever before. The new Logic Pro 6 contains all Emagic's superb plug-ins and software instruments, making it not only the best-equipped music production software available, but also the one with the most unbelievable price/performance ratio. Emagic's considerable expertise and experience in music composition, audio recording, sound generation, notation editing and publishing, post production, and film scoring is now all in one box – in Logic Pro 6.

World Radio History

World Radio History

Letters to Mix

SOUL ISN'T JUST A STYLE OF MUSIC

He was a friend of mine. Just days ago, I was using the present tense to describe my remarkable opportunity to work with one of the most legendary musicians ever born: Ray Charles.

In the studio, he was simply Ray or, as he laughingly referred to himself, the "Old Man."

Though I use the term "friend" loosely, I call him a friend because he behaved like one—a good one—and he had a greater impact on people like me because of it.

In August of 1999, I moved into a little studio on Burbank Avenue. I had the great fortune to be moving in next door to Terry Howard, Ray's producer, engineer and longtime friend. My studio interfaced well with Ray's, so it was not long before I found myself helping [Howard] with some of Ray's audio chores.

Charles didn't need us in the studio just to get something done; he liked to have Terry and the guys around. He had full command of every knob and button in his whole studio. The genius of his music was matched equally by his knowledge and abilities as an engineer.

When we lost my father to colon cancer, Ray sent flowers. The card read, "He will be greatly missed. Sincerely, Ray Charles."

I remember the Old Man as a friend, and he will be greatly missed.

Brian Ascenzo
Winter Springs, Fla.

WE DEFY THE SPEED OF SOUND

On page 72 of your June issue under "FixIt" ["Live Mix News"], it states that, "The speed of sound in air at 70 degrees is just under one foot per second." Man, is that slow! Sound travels at about 1,100 feet per second, which explains the 9-millisecond delay per foot.

Chris Burns
Rockford, Ill.

BIG NAMES, BAD LUCK

So the Grammy® audio crew only got four days for setup? Welcome to the real world, where most crews get little time for setup, soundcheck and rehearsal.

I don't want to undermine the great job these people do: As Mr. Feldman mentioned in his letter [June 2004], nine out of 10 times, these events [go as planned]. But I hate the way these "big names" are portrayed as the best guys in the business.

What these "big names" should be called is the "lucky ones" that for some reason (be it experience, a good manager, a friend in high places or simply because they are good at this) usually get to do great events with all [of the gear] they ask [for] and need.

A "big-name" crew is as vulnerable as the rest of us [to production glitches]. Don't make excuses—mistakes happen—they were simply overwhelmed by the production. That is what happens when most of us—the not "best guys"—have to make a stereo and 5.1 mix from the same console, which is not usually surround-ready, is without automation and has only a few processors, as well as a 72-input list for bands that most likely will not show up for soundcheck.

I agree that it is an insult to say that "they can't run a mixing board," as Mr. Arbisi said, [April 2004 "Feedback"], but it is just as insulting to name them the "best guys" when the rest of us have to make little miracles every week without all of the toys, resources and gadgets—not to mention all of the pre-production time and budgets—that they usually get.

Javier

CHOOSE YOUR OWN AUDIO ADVENTURE

Although I did not see the Grammys this year or have any part in it, I also take exception to the comments made by Chris Arbisi in the April 2004 "Feedback." I am a freelance audio engineer, primarily for live sporting events in Florida. A live remote broadcast can be one of the most difficult jobs an audio engineer will ever work on. It seems that Arbisi has been stuck in his nice, clean studio using the same console, patchbay, cables and outboard gear every day of the week.

He obviously has no live remote experience. He doesn't understand what it's like to work a college volleyball game at a venue he's never been to with a late A-2 who is actually a "studio" tech who doesn't know the difference between an IFB and an Intercom belt pack; or to show up to an event to find that the truck has a digital console that you've never seen before, a patchbay laid out and labeled by someone with no common sense, and with only two to three hours to make everything work before pre-production; or to show up at a spring training game at a facility that isn't pre-cabled, only to find that every cable on the truck was under six inches of water the day before.

I have heard of quite a few studio or live sound engineers "crashing" when they attempted to work on a live remote for TV. Most of the shows I work on allow us only five to seven hours [of preparation] before the event, [which] occasionally [means] having to learn new consoles and patchbays, and sometimes deal with poorly maintained trucks or less-than-adequate equipment. And while Feldman had four days to prepare for his show, and probably one of the better production trucks, that doesn't mean failures can't or won't occur. Something as simple as someone pulling a power cord to charge a cell phone or a stage manager handing talent the wrong backup mic [can do it].

I could continue for days on the failures I've seen on live remotes. Even with the best crew and equipment, some things are unavoidable. It's a shame Arbisi made his comments without knowledge of the field we are working in. My hat goes off to Feldman and his crew. No one notices the job we do until something goes wrong.

Mark Whitener

RECORDS AND RECORDINGS

With all of this talk about DAWs and format-exchange standards, let's not forget to standardize the one variable we actually can control: the proper labeling of media.

Please label your hard drives, CD-Rs, DVDs and AITs! [Otherwise, engineers have to wonder whether the disc you sent was] Retrospect or Mezzo? Nuendo, Logic or Pro Tools? Which version? How many process cards? HD or TDM? What is the sample rate and bit depth? Mac or PC?

I get projects from around the world, and for some reason, it is always an adventure to figure out what is on the tapes. These projects come from superproducers, respected commercial studios and home studios.

It is important to label your media properly so that when it arrives at its destination, the engineer does not have to "test" it in every drive and system—and, in 20 years, when you need to gain access to your files, you know what system and studio to book. That saves everyone time, money and aggravation!

CB
Miami

PRESSURE POINT
BRINGS DOWN CHICAGO HOUSE

On June 17, 2004, Chicago's music elite gathered at newly opened Pressure Point Recording for its grand opening party to welcome this hot new studio into the local pro audio community. Chicago Mayor Richard M. Daley stopped by early on for the ribbon-cutting ceremony, received a private tour and chatted about the Windy City's arts and entertainment communities.

Major label heads, hip hop/electronica artists and other invited guests were treated to a sushi dinner and other hors d' oeuvres while mingling away to the sounds of Howard Levy Band and DJ Maurice Joshua, who entertained the late-night crowd until 4 a.m.

"The grand-opening party to celebrate the opening of our A room was a smashing success," enthused studio manager Chris Schneider. "With friends and artists from Chicago, as well as around the country in attendance including the mayor, made it a great night. We look forward to hits coming from Chicago and Pressure Point for years to come."

For more information on Pressure Point Recording, check out "The Class of 2004" and the cover in our June 2004 issue, or online at www.pprecs.com.

PHOTOS: CRAIG DALTON

Pictured at the ribbon cutting, from left: manager Adrian Guerra, general manager David Chavez, studio manager Chris Schneider, Mayor Daley, studio owner Danny Bouilla and engineer/producer Larry Sturm. Inset: Mayor Daley at the SSL 9000 K

AVATAR RELIVES AMERICA'S PAST

Composer/producer Michael Whalen was in Avatar's Studio C (New York City) recording music for a four-part public television series called *Slavery and the Making of America*, which will air in the first quarter of 2005. *Slavery and the Making of America* tells the story of American slavery through the lives of enslaved men, women and children. The recording sessions captured performances by Kimati Dinizulu and Bashiri Johnson (pictured left and right, respectively) on a myriad of traditional instruments. Roy Hendrickson engineered the sessions and was assisted by Peter Doris.

RAY CHARLES, 1930-2004

A gifted pianist and saxophonist who seamlessly blended gospel and blues, Grammy-winning Ray Charles died on June 10, 2004, at his Beverly Hills home. His last public appearance was on April 30, when the city of Los Angeles named Charles' studios, built 40 years ago in central L.A., a historic landmark.

Diagnosed with glaucoma at age six, Charles became hooked on music early on, playing piano at The St. Augustine School for the Blind. After the death of his mother when he was 15, Charles headed to Florida and then Seattle to dabble in the music industry, finally cutting his first record in 1949. At Atlantic Records in the mid-1950s, Ahmet Ertegun and Jerry Wexler teamed up with Charles to produce some of the most well-known and influential soul/R&B music to hit the charts.

HOUSTON STUDIO
ADDS PRODUCTION

Dan Workman, co-owner and president of SugarHill Studios (www.sugarhillstudios.com), has launched Dan Workman Music (www.danworkman.com), a full-service independent production company, bringing in Nashville transplant Logan Bosemer as production assistant.

Workman, whose engineering credits include Destiny's Child, ZZ Top, Beyoncé, SmashMouth, Lyle Lovett and Enrique Iglesias, is currently working on recordings for Solange Knowles, southern jam-band Moses Guest and rock group Pale.
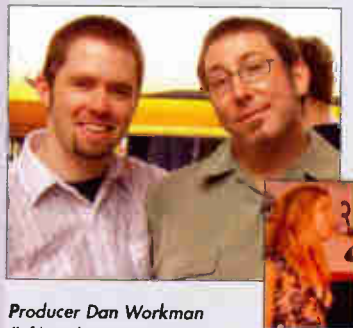
Producer Dan Workman (left) and engineer Steve Christensen pictured at the Dan Workman Music VIP party and showcase at SXSW, where they introduced singer/songwriter Sarah Sharp's (inset) new release.

SIR ELTON JOHN
STOPS IN AT TREE SOUND

Pictured back row, L-R: John Mahon, Guy Babylon, Adrian Collee (John's production manager), Matt Still, Bernie Taupin, guitar tech Rick Salazar, Elton John, Nigel Olsson, Davey Johnstone, studio manager Nina Baldridge, drum tech Chris Sobchick, Bob Birch and John Holmes. Front row, from left: interns Jonah Merrell and Travis Daniels, and Paul Diaz, Tree Sound owner

Elton John was at Tree Sound Studios (Norcross, Ga.) self-producing for the first time his full-length album, *Peachtree Road*, which is scheduled for release in early November. Lyricist Bernie Taupin was also in residence throughout the project as he, John and the band (Davey Johnstone, guitar; Nigel Olsson, drums; Guy Babylon, keys; John Mahon, percussion; and Bob Birch, bass) created magic in Studio A. The sessions were engineered by Grammy Award–winning engineer Matt Still, who was assisted by Tree Sound's John Holmes.

John returned to Studio A shortly afterward to track a duet with RCA Australian artist Catherine Britt. The song, produced by Keith Stegall, is slated to be featured on her upcoming release due out later this year. Engineer John Kelton was at the desk with assistant Zack Odom of Tree Sound.

RUPERT NEVE VISITS WEBSTER U

Webster University's Student Section of the Audio Engineering Society in St. Louis closed out its year with two events featuring Rupert Neve. At the first event, Neve, accompanied by his wife, lectured before a standing room–only crowd on topics including his experiences in the early days of console design and issues responsible for the loss of overall quality in digital audio. The following day, he continued the discussion before university students and faculty, focusing on transformers vs.

transistors and ICs, dynamic range, mixer and amp topography, ground issues and his latest interest: guitar pickups.

After the discussion, Neve autographed a 1970 Neve console (shown), which is used for its preamps and as a submixer for the DDA DMR-12.

Who: Marc Bertrand, Tannoy North America managing director

Main responsibilities: ensure that Tannoy continues to be a customer-focused and market-driven organization.

Previous lives:
- 1994-present, Tannoy North America
- 1990-1994, professional sound/Canadian musician
- 1986-1990, Metroland Printing and Publishing

The moment I knew I was in the right industry was...when I walked into my first NAMM show. It was like the first time you played in a band when you were a kid and the tune sounded like the recording.

If I could have been a part of any recording session, it would have been...*Led Zeppelin IV*—Bonham was the king of the backward beat.

Currently in my CD changer: Rush's *Moving Pictures*, James Taylor's *Greatest Hits*, Stone Temple Pilots' *Purple*, Supertramp's *Crime of the Century*, AC/DC's *Back in Black* and Guns N' Roses' *Greatest Hits*.

When I'm not at work, you'll find me...playing road hockey with my kids—can't wait until they're old enough to skate!

TEC AWARDS SPONSORS
LINE UP FOR 20TH ANNIVERSARY

Twenty-five major audio and technology companies announced support for Mix Foundation for Excellence in Audio's 20th Annual Technical Excellence & Creativity Awards, to be held October 30, 2004, at the San Francisco Marriott. AMD (Advanced Micro Devices) will again sponsor the Technical Awards and Gibson Guitar Corp. has renewed its sponsorship of the Les Paul Award.

Dolby Labs, Harman Pro Group, *Mix* and Shure are confirmed Platinum sponsors. Gold sponsors include Allen & Heath, Audio-Technica, Digidesign, Ex'pression Center for New Media, Guitar Center, Mackie/EAW, Mark of the Unicorn, Meyer Sound Labs, Remote Recording, Solid State Logic, TC Electronic and Yamaha. The Recording Academy and Tascam are Silver sponsors, and Apogee Electronics, Roland Corporation, Sennheiser, Skywalker Sound and Steinberg North America have joined as Bronze sponsors.

For information about TEC Awards sponsorships, contact Eric Geer at eg@wi.rr.com or 414.967-0104 or visit http://mixfoundation.org/tec/sponsorship.html.

BICOASTAL OPENS IN NEW YORK

Recording facility BiCoastal Music (www.bicoastalmusic.com) picked the first sunny day in a string of rainy ones to have its coming-out party. Founded by Grammy-nominated engineer Hal Winer, the studio is surrounded and enhanced by the quiet rural charm of Ossining, N.Y., yet is within a short car or train ride of New York City. The control room features a custom-built SSL C200 Digital Production console, Pro Tools|HD and a Russ Berger–designed 25x30 live room with a 22-foot cathedral-style ceiling.

The opening-night bash featured top engineering and musical talent from the New York City area, including mixer Mick Guzauski, producer/engineer Neil Dorfsman and cellist Christine Walevska.

—David Weiss
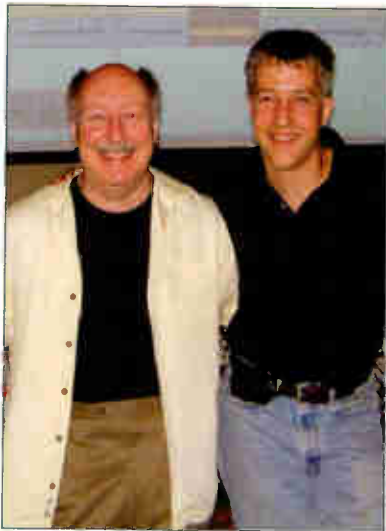
Studio designer Russ Berger (left) and BiCoastal Music founder Hal Winer

GRACE DESIGN
CELEBRATES 10 YEARS

In 1994, Grace Designs (www.gracedesign.com) introduced its first product: the model 801 preamp. Since then, the company has added the single-channel model 101, the Lunatec V3 portable stereo mic pre with 24/192 converters, the model 901 reference headphone amp and the remote-controlled 8-channel model 801R. This year, the company unveiled its first large-scale reference surround monitoring systems: the m904, m904B and m906. Mike Grace (pictured), co-founder and chief audio design engineer, said, "I'm honored to have spent the past 10 years designing and building audio equipment. I'm constantly humbled by the list of professionals who have chosen our products."

SRS LABS SURROUNDS
UNCLE KRACKER

Lava Recording artist Uncle Kracker relied on SRS Labs' Circle Surround" multichannel encoding technology to deliver their latest release, *Seventy Two & Sunny*, in 5.1 over standard CDs. Releases encoded with the Circle Surround technology can be played back on any CD player and do not require specific DVD-Audio or other playback gear.

Seventy Two & Sunny was created in 5.1 and then encoded to two channels, allowing radio broadcasters to play the music in surround without additional equipment or special processing. Andrew Karp, senior VP at Lava Records and head of A&R, said, "The ability to offer 5.1 on regular CDs allows us to offer far more value to our customers. Working with the Circle Surround format is simple and cost-effective, and since it is becoming such a popular format that is compatible with any surround sound receiver, we look forward to working with it again for future releases."

INDUSTRY NEWS

Academy Award–winning re-recording mixer **Scott Millan** returns to **Todd-AO** (Hollywood) as senior VP, creative sound services, studio operations... **Ronald Stone** joins **DTS'** (Agoura Hills, CA) board of directors...New CEO at **Doyle Technology** (Renton, WA): **Chris Britton**...The Echo Boys signed audio engineer **Bethany Lacktorin** to its Minneapolis-based commercial music and sound design house...Audio engineering duo **Casey Chester** and **Adam Charity** have joined the **38 Greene** (New York City) staff...Working with composer Doug Hall at **Propeller Music & Sound** (New York City) is **Jen Weirich**, manager of sales and development... **Yamaha Corporation of America** (Buena Park, CA) appointments in pro audio and combo division: **George Hamilton**, assistant marketing manager of digital musical instruments; **Michael Tempesta**, artist relations specialist for Yamaha Guitars; and **Jamie Media**, PAC district manager...**Harman Pro North America** (Northridge, CA) named **Dan Lynch** as applications engineer and product specialist for **BSS Audio USA** and will be based out of Denver...**Rob Lewis** is the new director of Pacific Rim sales for **Euphonix**; he will be based out of the company's Palo Alto, CA, headquarters...**Stanton Magnetics** (Hollywood, FL) promoted Henri Cohen to VP of sales and marketing...**Paul Erlandson** joins **Lynx Studio Technology** (Costa Mesa, CA) as director of product support...SLS Loudspeakers (Springfield, MO) welcomed **R. Bob Adams**, new director of technical communications...**Tannoy North America** (Kitchener, Ontario) expanded its team with sales manager **Derek Black**...Steinberg's (Hamburg, Germany) **Martin Stahl** is providing support for the post community in L.A. (where he is based) as project manager post-production.

Bethany Lacktorin

Derek Black

NOTES FROM THE NET

iTunes Crosses the Atlantic

On June 15, Apple launched its iTunes Music Store in the UK, France and Germany, providing music fans with the same online catalog, a la carte pricing, free previews, and one-click purchasing and downloading as their North American counterparts; a European Union version will be launched in October. In its first week, more than 800,000 songs were purchased and downloaded—more than 450,000 of these were sold in the UK alone.

For £0.79 each, Mac and PC users can access more than 700,000 titles from the Big Five and numerous indies, as well as exclusive tracks from worldwide artists. For more information and a free download of the iTunes service in the UK, France and Germany, visit www.apple.com/uk/itunes, www.apple.com/fr/itunes and www.apple.com/de/itunes, respectively.

SuperSize My Download

McDonald's has teamed up with Sony Connect to offer customers who purchase a Big Mac Extra Value Meal an access code worth one free song download at the Connect music store, www.connect.com.

According to Larry Light, McDonald's executive VP and global CMO, "Music continues to be at the forefront of our leadership marketing strategy. As the first to take a program like this across borders [France, Germany and the UK], we are achieving our goal of creating ideas that are 'first, big, best' in music, fashion, entertainment and sports, areas of high interest to our customers."

Ironically, food quality is not on this list.

Sennheiser Launches Online Lounge

Now live at www.truesoundlounge.com, Sennheiser's Flash-based True-Sound Lounge hosts new music from Sennheiser-supported emerging artists such as Sugarcult and Joey Whitesides and video shorts from top commercial filmmakers and producers. The site was co-created by MARC/USA (Chicago).

INDIE FILM MIXED IN ONE DAY
AT MUSICTECH

Pictured L-R: The mixing team comprised Musictech recording/production instructor and Pro Tools engineer Rob Schlette, Delivery Method director/editor Josh Apter and Musictech motion imaging instructor/sound designer Christopher Cunningham.

Equipped with laptops with Final Cut Pro and Mac G4s running Pro Tools (one with Digital Performer) while watching new indie film *Delivery Method* on the big screen, Musictech College (St. Paul, Minn.) faculty member Christopher Cunningham and crew mixed the entire sound for the film in just one day.

"Being able to make edits to a feature film on laptops while listening to the film in the context of a great theatrical sound system is very exciting," Cunningham enthused.

BILL LOWERY, 1925-2004

On June 8, 2004, music publisher William J. "Bill" Lowery died in Atlanta following a battle with cancer.

Beginning in the early 1950s, Lowery helped establish Atlanta as a musical presence. Artists in his publishing catalog included the Atlanta Rhythm Section, Mac Davis, Bertie Higgins, Jerry Reed, Tommy Roe, Joe South, Ray Stevens, The Tams and many others. In the late 1950s, Lowery constructed a studio in an old north Atlanta schoolhouse where he cut many of his best-known songs. As Southern Tracks Recording, the studio moved to its current location in '83.

CORRECTIONS

In "Melting Crayons to Make Records" (May 2004 "Current"), Henri Chamoux's last name was misspelled.

In "Class of 2004" (June 2004), Pressure Point Studio's design was completed by Kirkegaard Associates, not Kierkegaard and Associates. *Mix* regrets the errors.

Galaxy Studios

By Heather Johnson

Galaxy Studios, owned by brothers Wilfried and Guy Van Baelen, has a history of doing things first—not just in their home base of Mol, Belgium, but in *the world*.

The expansive five-room facility installed the first AMS Neve MMC Aquarius digital console in mid-2003, which was preceded by the "world's first" SPL MMC1 multichannel analog mastering console in December 2001 and followed by the API Vision in December 2003, an 80-channel board that's "the first in the world dedicated to do all-discrete analog surround sound," according to producer and Galaxy resident engineer Ronald Prent, who helped design the Vision with API's Paul Wolf.

Prent presented his surround console requirements more than five years ago after feeling limited by the modified consoles he was working on at the time. He wanted a desk with "less buttons, but more functions," he says. "The center section should be able to run surround in 5.1 but produce a true stereo mix at the same time. You should be able to switch independently between the two, and the console should take care of all the monitoring issues that would occur."

Numerous discussions later, API delivered. Each channel on the Vision has two 100mm motorized faders for a total of 160 input channels, along with a surround bus and three stereo buses. "On this console, you can mix in stereo and surround or you can do up to three stems for film mixing at the same time," Prent says. "And you can pan [a track] to wherever you want in a surround image. When you switch to stereo, it keeps the same balance, the same loudness."

Prent recently remixed two Simple Minds albums for a DVD-A release on the Vision, working in part from original Bob Clearmountain–mixed stereo masters. Prent also remixed 25 tracks for BMG's forthcoming SACD Hybrid release of greatest hits from French cult group Indochine.

A serious Genelec surround system (1035B fronts, 1038 rears and dual 1094A subs); a closet stocked with more than 100 mics; a choice of Studer analog, Sony DASH and Pro Tools|HD 192 recording options; and access to a 484-square-foot recording space and the massive 82x49x26-foot (LxWxH) Galaxy Hall also make the API studio (aka

the Blue Room) an attractive tracking space. German band Pur recently recorded a 45-piece string session in the Blue Room, while acts such as Lauryn Hill and Mary J. Blige and Telarc Records have occupied the other two main studios. (The third features a 72-channel Neve VR-P with Flying Faders and post-production panel.) Co-owner Wilfried Van Baelen recently maxed out the AMS Neve MMC when he used 250 channels in 24-bit/96 kHz, with 24 channels doing real-time sample rate conversion from 44.1 to 96k while mixing José Carreras' latest album for SACD Hybrid release.

The facility's ardent commitment to isolation is another advantage for clients. University of Leuven professor Gerrit Vermeir and Eric Desart of the Gerber Group designed each studio as an insulated bunker, put them on steel springs and installed 2.75-inch-thick, solid-glass windows in the control room and 4-inch-thick, 2,200-pound windows on the outside walls. "You can put a 60-piece orchestra in the main hall and somebody could be playing heavy metal in the control room next door, with visual connections, and you won't hear a thing," Prent says. "It's amazing."

While Galaxy is known as one of the leaders in DSD recording, this year, the studio has received more calls for DVD-A. "The funny thing is," Prent explains, "in America, it's more DVD-A–oriented, and in Europe, it's far more SACD-oriented. But the Simple Minds album, for instance, is a DVD-Audio release for DTS and EMI London. So it's starting to become more of a mixture, but we've had more SACD work during the last three years."

Whatever the format request, Galaxy is equipped. The main studios contain complete 5.1 systems and can handle up to eight channels of DSD. The mastering room's SPL MMC1 console, designed by the company's Wolfgang Neumann and based on Prent and Bob Ludwig's suggestions, can handle all foreseeable audio formats. "The console makes use of [SUPRA] op amps that

operate at 120 volts," Prent says. "This gives you a bandwidth of nearly 200 kHz, which is what they use in DSD recording and high-res PCM recording. This gives you a headroom of nearly 40 dB, which is incredible. There's no limitation to what the console can do."

The mastering room is measured to DSD standards and includes 16-channel SADiE ARTEMiS, Pyramix Virtual Studio, Sony Sonoma and Pro Tools|HD 192 workstations, which allow for SACD, CD, DVD, Dolby Digital and DTS mastering. The room also features an Eggleston Works loudspeaker system and equipment from DCS, Z-Systems, Millennia, Weiss, Philips, Tascam and 360 Systems, among others.

Galaxy celebrates the completion of its latest renovation (the kitchen) this year, concluding a 12-year building process and realizing the Van Baelen brothers' "vision," so to speak, that emerged after turning an old chicken shack into their first successful studio in 1980. "It's an incredibly high investment, but it looks like it's working for us at the moment," says Prent of their latest installations. "In the end, there's still artists and people in the record business that want a good product. It's time that we put the value back in music."

For more information, visit www.galaxy.be. ■

Ronald Prent with Galaxy's API Vision and KRK monitors

PHOTO: BENNY DEGROVE

Instant

The ISA 428 Pre Pack features four classic transformer-based microphone pre-amps with switchable input impedance, and Focusrites latest eight channel, 192 kHz A/D converter option - the perfect future-proof interface for your DAW or digital console.

Satisfaction

The ISA 220 brings ISA performance to the masses. Combining all the core classic circuit designs from the award-winning ISA 430, the ISA 220 Session Pack provides you with the ultimate processing tools required to bless your session with the Focusrite signature sound, at a simply unbelievable price.

Assured

The new ISA 430 MK II Producer Pack is the most comprehensive channel strip in existence. Advances over the original include a multi-format compressor, switchable impedance and mic AIR, enhanced listen capabilities, unmatched routing capabilities and world-leading 192kHz conversion.

The ISA Range from Focusrite

Rich Tozzoli
Senior Editor / Columnist /
Multichannel mix engineer

Carly Simon, Blue Oyster Cult, Marsalis Family, Average White Band, David Bowie

"I use every tool in the 428's shed. But, as with anything else, it all boils down to does it sound great or not. Well, this thing truly sounds great."

Christiano Avigni
Live Sound Engineer/Mobile
recording Engineer

PINK, SPARKS, among others

"It's important to have a channel strip you can rely on, but the more versatile the unit, the smaller the rack you have to drag along with every tour. With the 430 MK II, I'm now a huge step closer to the 'one box does everything' dream."

Simon Osborne
Mixer / Engineer / 5.1 Mixer

Sting, Texas, Level 42, Dominic Miller, Julia Fordham, Chieftains, Ian Dury

"I use my 220 on vocals and a variety of other sources including bass. You have smooth EQ and plenty of headroom. For me, the ISA EQ is one of the most transparent in existence."

Neil Davidge
Producer/Composer

Massive Attack, Liz Frazer, Prodigy

"If you're thinking of buying some new mic's, hold on, checkout the Focusrite ISA428 first, it gave my collection a whole new lease of life."

digidesign

NORTH AMERICAN DISTRIBUTOR
www.digidesign.com

World Radio History

Focusrite

For a demo, call toll-free 1-866-FOCUSRITE
or visit **www.focusrite.com** for further information

BY STEPHEN ST.CROIX

I Can See for Miles and Miles...Part 2

Well, Cm7, Anyway

ILLUSTRATION: PETER BENNETT

Do you remember that last month's top three keyboards were the Yamaha Motif ES, the Roland Fantom X and (the dark horse) Korg Triton Extreme? If not, this month may be a bit confusing.

But let's get right to it. Which is the winner? Wellll...it depends. I'll tell you right up front that the Yamaha Motif ES8 is the hands-down winner for overall sound. Its acoustic piano, Rhodes and Wurlitzer are the absolute best. No contest. These voices rival some of the serious computer-based virtual instruments. I have no idea how they pull this off, even allowing for the obvious memory-conserving tail looping.

But in all this comparing, I learned that, and it pains me to say this, sound isn't necessarily everything. Damn, that hurt. I don't want to get ahead of myself, but what good are great sounds if the thing that makes them is so infuriating that you need valium or maybe heroin to use it? More on that below.

Comprehensive comparison of these machines is a bit difficult, and so this month's column is the longest I have ever written—by far. Basic operational concepts and feature lists are so varied that in some ways, it's apples and oranges. But don't get discouraged. I will tell you the strengths and weaknesses of each and how they stack up. Here we go.

YAMAHA MOTIF ES8

Without a doubt, this is the best-sounding keyboard there is. *But*...it is totally impossible to use. The only thing more confusing and frustrating than the synth itself is its manual. *This machine is user-hostile.*

Still, I can't stress the sound quality enough. Within the keyboard world where tiny sample ROMs under 256 meg are considered sufficient, this thing is freakin' king.

Their new acoustic piano is incredibly sensitive and expressive and, well...real. Half the time I pounded on its surprisingly decent weighted keyboard, I felt like I was physically playing a real piano. Not just be-

World Radio History

cause of the keyboard, but because the sound was convincing enough to get my brain to hear a real piano. Same for the Wurlitzer. You play it like a Wurlitzer, you get a Wurlitzer. And as I learned in the past few months, this is not so easy to achieve.

A friend whose ears I trust feels that this synth is sterile and cold, but I would call it precise and accurate. This is now a running disagreement between us—could be two ways of saying the same thing.

I know that this machine has a boatload of features, but I never found most of them. You see, the user interface is the most obtuse, arbitrary and counter-intuitive thing I have ever seen. Not that there is much to see: It is fitted with a minuscule, faded monochromatic LCD screen half the size of the one on my cell phone. But I know that this, along with the weak pea-soup green backlight, is and always has been the Yamaha Way. But this, in case you missed my drift, is *not* my way.

Once you learn to look at the incredibly powerful world inside the Motif ES through the Official Pinhole, you discover that the actual operation of the machine was conceived by beings, well…not like us. I doubt

that they are even from this quadrant of the Galaxy.

It doesn't do *anything* in *any* way that *anybody* I know would try to do it. It fights you with every button push. It's like a bad

It doesn't do anything in any way that anybody I know would try to do it… and who wants to argue with their gear to make music, especially when they can't win?

Atari video game. And who wants to argue with their gear to make music, especially when they can't win?

And sadly, I couldn't even give it a satisfying chuck out the window; it was a loaner.

And did I mention that this monster sam-

pler comes with, wait for it…*no* sample memory at all?

Now, as for power, the ES wins again. It has by far the most simultaneously available effects, including some decent reverbs for a keyboard. At least I think it has all this. I never actually managed to get it to do what I wanted in the weeks I had it before I gave up (prompted by absolutely *the worst customer support experience of my entire career*, where the official Yamaha guy in New York actually told me it was *supposed* to forget the tracks I had recorded when I tried to record the next ones—really).

Storage is both SD and USB, or you can switch the USB port within a utility page somewhere to talk to a computer instead. For me, this was a non-issue. As a Mac guy, I couldn't decide if the ancient OS 8 software was more lame or insulting. I guess it was equally both. The Windows software was predictably Yamaha-ey.

One thing is abundantly clear: If Yamaha built their awesome guts and let someone else, anybody else, do the operational logic and interface, they would have the Machine From Hell. But alas, they do not.

This thing really hurt me. I found it (and

A Law Unto Itself

Misusing the Legal System Hurts Us All

"The first thing we do, let's kill all the lawyers."
—Shakespeare, *Henry VI*

Actually, let's not. The Shakespearean character who utters this line is preparing to throw the kingdom into chaos and sees getting rid of lawyers and other educated people as the first step toward that goal. I think we've got enough chaos in our business already.

Lawyers can be forces for good, of course, especially when they're on your side. What makes lawyers go bad is when people hire them to misuse the law. And those people deserve, well, maybe not to be killed, but it would be nice if they could be put out of business.

One of the primary purposes of a legal system, at least in a free society, is to protect the weak against the strong. Every individual is entitled, so they say, to his or her day in court, and all individuals, so they say, are equal under the law. This means that bullies who beat up on smaller individuals are supposed to be punished, whether they are neighborhood thugs stealing kids' lunch money or large corporations taking advantage of trusting customers, employees or shareholders. And the law also protects bullies from themselves, restraining them from their worst impulses so that their nefarious deeds don't come back to bite them.

We all know it doesn't always work out that way, and too often, justice is the sole property of those with the most resources: money. But sometimes, especially when legal issues are thoroughly examined by the system expressly set up to deal with those issues, the results can be very good indeed. They even allow us to get beyond our own limited vision and open ourselves up to the future.

A case in point is Sony Corporation of America et al. v. Universal City Studios Inc. et al., usually referred to as "The Betamax Case." For you young 'uns who may not remember this (or you oldsters who have forgotten), in 1976, Walt Disney and Universal Studios sued Sony Corporation over the fact that Sony's newly developed home VCRs could record copyrighted television programs off the air and therefore, Sony, and anyone who used a VCR, was violating the studios' copyright. The studios were positively apoplectic. Their side of the fight was led by a former politician-turned-movie industry lobbyist named Jack Valenti who proclaimed, "The VCR is to the American film producer and the American public as the Boston Strangler is to the woman home alone."

After a couple of seesaw decisions in lower courts, the case was finally decided by the U.S. Supreme Court by a one-vote margin in favor of Sony. The court's decision was based on the fact that individuals making

World Radio History

recordings of television programs for their own consumption should be considered fair use under the copyright laws.

After that, of course, movie studios got into home video themselves—in a big way. In fact, it could be said that home video *saved* the movie industry: Today, something like 50 percent of the studios' revenues comes from VHS and DVD sales and rentals. Nonetheless, like a dinosaur who refuses to accept his extinction, Valenti

try allowed four competing systems to co-exist. No one could figure out which one to invest in and it soon sank without a trace.

But of late, regulatory agencies have gone into hiding (except when handing out largesse to corporate donors) while the most significant legal fights have taken place outside of the courtroom; for example, the Recording Industry Assocation of America vs. file sharing. Is this case wend-

> When legal issues are thoroughly examined
> by the system expressly set up to deal with those issues,
> the results can be very good indeed.
> They can even allow us to get beyond our own limited
> vision and open ourselves up to the future.

(who as I write this, has, at long last, announced his retirement) continues to argue that home video hurts the movie industry.

Ironically, Sony's Betamax format lost out to the technically inferior VHS, but that had nothing to do with the court case. The important thing that emerged from the battle was the preservation of fair use as a crucial aspect of the principle of copyright. Fair use is supposed to promote the exchange of ideas, and the Betamax decision did exactly that: Without it, we would not only not have VHS, but we also wouldn't have DVD, miniDV, iMovie or TiVO.

Like the courts, regulatory agencies are at their best when working to promote new technologies in a fair and firm way. The '60s rock 'n' roll explosion might never have happened had not the FCC in 1964 changed the rules so that radio stations that had licenses for AM and FM transmitters were, all of a sudden, required to broadcast separate programs on each band. (Of course, the radio lobby fought this bitterly and managed to delay its implemention for three years—just in time for the release of *Sgt. Pepper*—and then in the early '90s, hat-in-hand and bemoaning the decline of AM radio audiences, got the rules changed back.

Stereo television might not have happened—or would be in the same chaotic state as digital television is today—if the FCC didn't mandate one system that every broadcaster implement. Anybody remember stereo AM radio? I didn't think so. The FCC dropped the ball on that one, and bowing to pressure from the indus-

ing its way through the courts like the Betamax case so that each side gets to rationally argue its position before impartial judges? Not exactly. The RIAA (of its five members, only one—Warner Bros.—is actually headquartered in the U.S.) has now sued close to 3,000 individuals for song-swapping, yet not one of those cases has made it to court or even mediation. So we don't have any idea whether any of these people are actually breaking any laws.

Four hundred of the defendants have cried uncle in the face of the association's legal muscle and forked over a reported average of $3,000 each (although some sources say that figure is way too low). Add it up and you probably get a sum somewhere close to the lawyers' bills. One thing you can be sure of is that not a dime of this money has made its way to any recording artists.

Many defendants in these suits are college students and picking on them is a brilliant strategy. What parent, already facing tens of thousands of dollars in tuition costs, is going to want to spend *more* money fighting a giant organization with unlimited resources so that his kid can continue to download the latest releases by big-label artists who the parent can't stand anyway? In the latest round of lawsuits, a couple dozen defendants have decided not to settle, so perhaps our judicial system, as creaky and flawed as it may be, will at least get a crack at sorting out the issue. Maybe.

To date, there has been only one significant court decision relating to this mess: A Federal District court ruled that when the

World Radio History

RIAA (or any other copyright holder) engaged in fishing expeditions to sniff out suspected file sharers, it couldn't force Internet Service Providers to divulge customers' personal information. Score one against Big Brother.

By the way, one of the best articles I've read lately on the real meaning of media piracy appeared in the May issue of our sister publication, *Millimeter*. Check it out at millimeter.com/mag/video_piracy.

Meanwhile, as new technologies emerge, new ways for bullies to misuse the law at the creative community's expense and its consumers are sprouting up right behind them. Sarah Benzuly wrote in the May 2004 issue ("On-the-Spot CD Releases") about the people who are making concert recordings that the audience can take home that very night. All it takes is a rack of fast com-

gress not succumbed to a massive public outcry and overruled an FCC decision that would have raised the limits of ownership of broadcast stations even further.) Clear Channel also owns 130 concert venues in the U.S. and Europe and claims to have staged some 32,000 events in 2003.

Not surprisingly, the parent company's reach has created some problems for others that are involved in the various areas in which it operates, and thus it is no stranger to the courtroom. In May, after being told by a federal judge that, yes, it would have to stand trial, Clear Channel settled an antitrust suit filed by a Denver concert promoter who accused them of refusing to play the music on their stations of any acts who performed at non-Clear Channel venues. Clear Channel, of course, "admitted no wrongdoing."

a working system. I have at least a half-dozen engineering students who could have come up with the idea and one of the requirements of a patent is that it be "non-obvious." (For another look at the subject of bogus patents, see my "Insider Audio" column from June 2001.)

"We provided Clear Channel with a lot of documentation for older patents showing this technology has been out there since 1994," says Bair. "The patent examiner must have been asleep." Nonetheless, Clear Channel is using the patent as a bludgeon on its competitors. "Last year, they sent cease-and-desist letters to our president, Sami Valkonen," says Bair. "We had no idea about the patent. They bought it at the same time it was made public." But representatives at Hyburn and DiscLive say that the systems they use aren't infringing on Clear Channel's patent. "We don't practice what their patent is claiming," says Bair. "We use off-the-shelf software like Steinberg's WaveLab, along with our own technology. How can you patent the way someone uses a retail product?" Furthermore, according to Bair, "From what I understand, the process they do at Instant Live is different from what's in the patent."

> The RIAA has now sued close to 3,000 individuals for song-swapping, yet not one of those cases has made it to court or even mediation. So we don't have any idea whether any of these people are actually breaking any laws.

puters, a boatload of storage and a mobile CD-pressing plant. It's a win-win situation for everyone: The recordings are far better than the typical Walkman-under-the-jacket bootlegs of the past, the audience gets a more meaningful souvenir than a T-shirt and the bands stand to make a pretty decent amount of money as there's no record company or distribution chain to suck up the profits.

The three largest players in this field are Hyburn, DiscLive and Instant Live. Phoenix-based Hyburn has been around since 2001, when it produced the first onsite live disc for the Phunk Junkeez. DiscLive started in the spring of 2003, founded by two college students and two industry veterans. This past April, it was acquired by Dallas-based Immediatek, a small company developing new delivery systems such as NetBurn, which aims to make it possible for artists to sell music on the Net without worrying about it being copied.

Instant Live's story is slightly different, as it's owned by Clear Channel Communications, the 600-pound gorilla of the entertainment industry. Clear Channel owns about 1,200 radio stations, roughly one-third of this country's stations. (They would own a lot more by now had Con-

The company is also making Instant Live's rivals pay royalties if they want to get into any of Clear Channel's concerts. "If they own the venue, then we can pay them a reasonable fee for that," says Zach Bair, CEO and chairman of Immediatek. "It's up to the band. If the band chooses them over us, so be it. I think the live disc industry is a big enough sandbox for all of us to play in."

But it's gone further than that: In April, Clear Channel bought the rights to a patent (number 6,614,729) that, as George Petersen mentioned in his July 2004 "Editor's Note," the company claims gives it the exclusive right to record any concerts and sell the CDs on-site *anywhere*. "We want to be artist-friendly," Steve Simon, the director of Instant Live, told *Rolling Stone*, "but it is a business, and it's not going to be, 'We have the patent, now everybody can use it for free.'"

The patent—filed in September 2001 by two brothers, an electrical engineer and a lawyer—describes a generic system to record, edit and duplicate CDs using redundant systems. (You can view it at http://patft.uspto.gov/netahtml/srchnum .htm; just type in the patent number.) It's clever and looks like it should work, although the brothers apparently never built

Clear Channel forges ahead, telling anyone who will listen that its patent makes the company the only game in town. "Band managers are continuing to be told that DiscLive will not be able to record and issue CDs on-site," says Bair. The manager of The Pixies, one of the most popular artists to have worked with DiscLive, told *Rolling Stone* that they may switch to Instant Live. "It may be best to feed the dragon rather than draw swords," he said. "Still, I'm not fond of doing business with my arm twisted behind my back."

Besides being a businessman, Bair is also a musician. "As an artist," he says, "I look at this and it makes me angry. I would find it hard to pay Clear Channel to record my own band. Sooner or later, there will be a big artist backlash against them from artists with a lot of money.

"On the other hand, the business side of me says I'd rather come to an agreement with these guys than fight it out in a courtroom. But if I'm pushed to the wall, I'm not going to throw in the towel."

Let's hope not. As many of us learned in high school, sometimes a well-aimed towel is the best way to fight off a bully. ∎

Paul Lehrman isn't a lawyer, but he knows a lot of them. So be warned.

World Radio History

From the Bottom
UP

ILLUSTRATION: **DMITRY PANICH**

The Lowdown on Bass Recording

BY MAUREEN DRONEY

Invariably, it's a song's lyrics and melody that most obviously and immediately grab the listening public's attention. But often, as any good music producer knows, what really drives a piece of music is its bass line. That's what sets the tone, lays down the groove, complements the melody and leads you through the song. But because bass resides in a certain narrowly prescribed area of the audio spectrum, it's often difficult to capture it properly when recording. Those low frequencies take up a lot of air space; if you don't get it right, then you won't hear them. Conversely, if you get too much of them, then you're left with mud. Given small control rooms, recording gear that's less than full frequency and, according to some, the proliferation of digital, well, getting a great bass sound can be challenging, to say the least. Searching for fresh insight into the process of recording this all-important instrument, *Mix* rounded up some experts and asked them to share their thoughts, theories and tips.

RIK PEKKONEN

Los Angeles–based engineer Rik Pekkonen's discography extends over 30 years and includes records with The B-52's, Booker T. & The MG's, Garth Brooks, Larry Carlton, B.B. King, Lyle Lovett, Ziggy Marley, Aaron Neville, Roy Orbison, Ricky Martin, Joe Sample, Gillian Welch and 11 releases by soul jazz legends The Crusaders. When I caught up with him, he was working with producer Stewart Levine, finishing a very funky album of New Orleans soul by Dr. John.

Pekkonen phrases the bottom line succinctly: "The bass is the soul of the record. It's also the most elusive element." Aware of the complexity of the challenge, he strives for simplicity in recording and straight-ahead equipment choices. "Ninety-nine percent of the time," he says, "we use the direct signal. I'll choose a Demeter tube direct box for that. If we use an amp, I'll use a Neumann U47 tube, a Neumann 47 FET, a Sony 55P or a Sennheiser 421 microphone on it. I'll isolate the amp in a booth or, if it's in the main room with other musicians, I'll baffle it off. I place the mic four or five inches away from the speaker and off-center. Sometimes the bass player will have a favorite spot on the speaker, so it's always good to ask. If you aren't able to record an amp, you can always put the direct signal through one later. Just send it through the cue system [using the cue pot for gain control] and, over a tie line, into an amp."

If there's a choice of amp, Pekkonen prefers an Ampeg B15. "It's so versatile," he notes. "A good bass player with the correct bass can get jazz, rock, pop, R&B—and more—sounds easily. Of course, the absolute best thing is to get someone like Abe Laboriel, Freddie Washington Jr., Nathan East, Reggie McBride, Hutch Hutchinson or Darryl Jones who can not only can play great, get a great sound and have just the right bass for the song, but are also great guys and easy to work with. If something isn't right on the first run-through or so, they'll take another approach. They're always open to suggestions on how to make it right."

Whether Pekkonen limits the bass signal from the get-go or not is determined by what he knows about the bass player and his or her playing style. Whenever possible, he also discusses the desired sound with the producer, artist and/or bass player before determining what kind of signal processing will be applied.

"For limiters," he comments, "I like [UREI] 1176, dbx 160 and Teletronix LA-2As. If you want superduper limiting because the part is incredibly dynamic and all over the place, use a Fairchild. If you need something more rock 'n' roll transistor-sounding, use an 1176. dbx 160s have more top end, and an LA-2A gives you a warmer tube sound. I don't usually do too much limiting on the way in—I want to be able to change my mind. If it's already too limited, you can't change it."

Busy tracks with lots of instruments fighting for space are an everyday challenge for engineers who must struggle to find the right sound for each instrument. "Simplicity is the answer," Pekkonen advises. "Signal processing to make the bass sound a little 'alien' so it stands out in the track and isn't so homogeneous might work. You can signal-process a bass to sound very unlike a normal bass to where you go, 'What's that?' so that it makes its own space. Whether it actually works in the track or not is a different question, but it's worth a try."

Pekkonen's First Commandment of good bass recording? "Know your speakers!"

TONY LEVIN

Bass virtuoso Tony Levin is perhaps best known for his work with Peter Gabriel for the past 25 years, including Gabriel's masterpiece, *So*. At another end of the spectrum are his more than 20 records with King Crimson and his playing on releases by David Bowie, John Lennon, Alice Cooper, Tracy Chapman, Paula Cole, James Taylor and Warren Zevon, as well as on his own four albums, the most recent of which is *Pieces of the Sun*.

Tony Levin (left) with Jerry Marotta

"The most important function of a bass sound is to enhance the style of the music and of the part," states Levin by phone from his home in upstate New York. "Historically, some prime examples are Paul McCartney's woody/muted sound in The Beatles; Tim Bogert's bass-y, melodic playing in Vanilla Fudge; Chris Squire's trebly, melodic sound; and all the Motown-style, clean, clear Fender sounds. Ultimately, the sound of the bass is dependent on who's playing it. There are a tremendous number of things that the player can do to change it: phrase things differently, pluck a string differently, have a different attack or use their fingers in a different way to make the notes shorter or longer.

"These days, with lots of synthesized instruments filling in the low end, listeners are getting used to hearing a great deal more low frequency in the music and I've found myself trying to squeeze more lows out of my instruments. I also take note when I hear it done in an effective way on CDs. Even if it's a synth, if it's doing an effective job, it may have some effect on how I'll react to the next music I'm part of."

How has Levin added more low end to his sound? "By getting a new bass with more lows," he says with a laugh. "You only have what's there [on the bass]; it's not a matter of just boosting a single frequency. There are good, usable low frequencies and there are the kind of frequencies that are going to get mixed out of the record. I mostly play Music Man basses. They've always been bassier with more punchy, usable low end."

Levin also finds that he gets more lows by playing "a little further up on the string, farther away from the bridge" and—while he says engineers debate with him on this—by dampening the strings, either with a bass' built-in dampers or with padding. "I've been told it doesn't make sense," he says with a laugh, "but to me, it sounds bassier. My classic example is on Peter Gabriel's 'Don't Give Up' in the middle of the piece, where the feel changes and becomes kind of gospel. I was playing chords on a Music Man that didn't have dampers built in, and for that section, I wanted to dampen the strings. I'd forgotten my own, so I was looking around the studio for a piece of foam rubber or something to put under the strings. As it happens, I'd brought my newborn daughter to England with me for the sessions, and I'd packed my bass cases full of Pampers. My eye fell on one, and I packed an entire Pamper under the strings. That's the only difference in the sections of the song: Same bass, same EQ, and while it certainly sounds dampened, it also sounds bassier."

Although he may use amps for recording sessions, Levin always goes direct, favoring a Radial Engineering JDI DI. "I like its low end and definition," he notes. "I've used it on all the recordings I've done in the last few years and on all the live shows. They make a stereo unit that works well for me since I split my bass signal into two for various effects."

When recording at his home studio, Levin uses the stereo JDI DI with one side fed to a Neve 33122 mic preamp/EQ module and then into Emagic's Logic software. The other side goes into a Retrospec tube DI, into an Empirical Lab Distressor and then into Logic.

Levin generally brings his rack to recording sessions that are held for a week or more. Compressor-wise, he'll often choose his Distressor for "clean, studio-quality sparkle." For heavy rock playing, he uses a prototype Retrospec compressor. "I find the prototype colors the sound slightly more than the finished model in a way that works well for my basses."

Amp-wise, Levin relies on Trace Elliots or an Ampeg SVT for a "classic, heavy rock sound." For the appropriate situation—such

as the upcoming new King Crimson record that began in April—Levin enjoys pulling out his large collection of effects. Current favorites, which Levin has been "tinkering" with, are Big Muff fuzztones ("If I can keep one working and reasonably quiet!") and octave dividers: "I'm always trying new ones, but I've found EBs to track best for me.

"For Tony's last record, *Pieces of the Sun*, which was done very much live," adds Levin's engineer Robert Frazza, "we actually used at least six channels: a mono DI for the center, which was basically clean and unaffected, and a stereo one with left and right running through his rack and generally heavily effected. We also took outputs from each DI to his amps."

The center-channel amp was a 1,000-watt Trace Elliot AH-1000-12 with four 10-inch and one 18-inch speakers. The left and right amps were Trace Elliot 7210H combos with two 10-inch speakers. All mics were Shure Beta 52s, one mic per cabinet, through a Neve console. Frazza places the mics "pretty much straight-on, right on the center of the cone. There's a blue strip [marker] on the Betas; behind that, everything is rejected. They're very much for close-miking."

Frazza's advice: "Set up so that you have a clear view between the drummer and bass player! And use speakers you know well. I use a cheap pair of Boston Acoustics A60s and after 10 years of using them, they are extremely accurate for me."

RANDY JACKSON

Long before bassist/producer Randy Jackson became a celebrity as a judge on *American Idol*, he was one of the most in-demand bass players in pop music, working with everyone from Bruce Springsteen, Bob Dylan and Journey to Aretha Franklin, Whitney Houston, Celine Dion, Mariah Carey and Madonna. These days—in between taping *Idol* episodes and promoting his new book, *What's Up Dawg? How to Become a Superstar in the Music Business*—he still keeps his hand in, often recording at

Randy Jackson in The Dugout

his personal studio, The Dugout.

Before talking gear, I asked Jackson for some opinions on current trends in bass sounds. He brought up two issues: First, a lack of true low end in many current instruments. "It seems like a lot of manufacturers are still hung up on midrange-y–sounding basses," he observes. "Maybe it's a holdover from Jaco [Pastorius], who was one of the last real superstar bass soloists. He used the back pickup of the [Fender] Jazz bass, which is a

Capturing the Wild Animal: Acoustic Bass

Rik Pekkonen

Rik Pekkonen: "The most difficult thing about recording acoustic bass is the situation you're in. If the bass is live in the room with a rhythm section, you will need a direct output, a mic and baffling. If the bass player insists on a mic only and no baffling and has to be next to the drums—and let's throw in an aggressive piece of music!—you'll have every instrument in the room on your bass track.

"After a playback where everyone hates the sound, you'll get to move the bass into an iso booth or suggest the direct again. Normally, if I don't know the bass player, I will have all these options set up before the session so we don't waste time.

"Now you have the bass isolated. Most acoustic bass players don't like direct bass sounds: It sounds too confining, the EQ is unnatural—the list goes on. A classic tube mic three or four inches away from the instrument and in-between the bridge and the F hole is my traditional placement, but when possible, a Sony 55P mounted underneath the bridge is the best miking technique: When the bass player moves around to the groove of the song, he's never off-mic.

"With acoustic bass, there will be certain notes that speak more than others; it's the nature of the beast. Limiting will help the notes be more consistent. The player, the instrument and the song are the real factors to a great acoustic sound. You just have to be ready."

Bob Power: "Context is everything and modern recordings are a lot about presence. There's a big difference between listening to an Ellington or a Mingus record with that beautiful big thump from across the room and a modern record with a more present acoustic bass sound. With acoustic bass, a lot of the sonics are determined by the density of what else is going on and how much presence I need to get.

"When I work with someone new, I always ask if there is anything in particular that they love or hate and I'll explain what I'm doing as I go. I tend to choose really high-end mics for acoustic bass: 47s, either tube or FET, Neumann M49s and 149s, and I've also had good luck with my German Brauner VM1. I once did a recording of the Count Basie band with San Francisco engineer Fred Catero. He used a Beyer ribbon mic with a big ball, I think an M500, and it was great.

"More important than what you use is where you put it. I'll ask the bass player to play and then I'll walk around the instrument a few times and listen really closely. Sometimes an F hole is good; sometimes the two F holes will be very different-sounding from each other. You may want the mic down by the bridge or up by the fingerboard. Many times, the bass player will say, 'This is the good spot,' and they are usually right. If I can, I also like to use a pencil-style condenser in the middle of the bridge, pointing up. If you wrap an AKG 451 or a KM Series mic in either a towel or a piece of foam, you can wedge it pointing up toward the neck, in-between the tailpiece and the body, down at the bottom of the bass. You have to be careful that you don't wedge it in too tight and dampen the sounding board too much. But if you mix a little bit of that in with the broader mic that you have on the body of the bass, it can really work well.

"For compression, whatever I use I tend to go with a slower attack and release. It's very easy to mess up acoustic bass because there is so much low end and they tend to be uneven through their range. You may get one note that balloons; it's just a natural resonant point of the instrument that jumps out. If you hit the compressor wrong, it sounds terrible, so you have to watch it carefully."

With the New AES16, the Biggest Part of Your Digital Audio System May Be the Smallest

You have invested a lot of time, money and commitment into your digital audio system, with the best in digital mixers, converters, digital audio workstations, software and recorders. All you need now is the final piece to tie the entire system together - the AES16™ from Lynx Studio Technology.

Working in single-wire mode, the AES16 offers 16 channels of 24-bit AES/EBU I/O at 192 kHz using Windows or Macintosh computers. You can also use dual wire devices for eight I/O channels. The AES16's software controls its internal sixteen-channel mixer, routing your signals just about anyway you can think of with virtually no latency.

In addition to being the ultimate digital audio router, the AES16 features a new Lynx technology SynchroLock™. Basically "jitter control on steroids", SynchroLock provides extreme jitter tolerance at all inputs. By coupling statistical analysis with low-noise clock generation techniques, SynchroLock extracts a very clean clock with 3000:1 jitter attenuation from AES signals affected by long cable lengths and other noise sources. The clock output of SynchroLock can also be used as a very accurate word clock source for other studio devices.
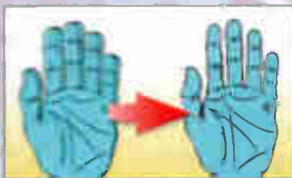
Need more than 16 channels? No problem. Up to four AES16 cards can be installed in a single computer, for a total of 64 inputs and 64 outputs. You can also add 16 channels of ADAT Lightpipe I/O with the optional LS-ADAT LStream card that attaches to the AES16.

The AES16 was developed with your facility in mind. The AES16-XLR model with two six-foot cables and professional XLR connectors may be the best option for you. For added convenience, we offer optional twelve-foot cables with D-sub connectors for Apogee, Benchmark, Yamaha, Mackie and other top digital audio brands. Plus the AES16's PCI interface is designed for either 5V or 3.3V signaling, making it totally compatible with the new Macintosh G5 models.

Please visit our website at www.lynxstudio.com to learn more about how the AES16 lets your computer become the control center of your digital audio system.

Now that's big news in a small package.

Lynx STUDIO TECHNOLOGY

www.lynxstudio.com

very midrange kind of pickup. That's brilliant for a certain kind of sound or for soloing, but I haven't heard that many bass solos on the radio lately. These days, it can be tough to get the right kind of bottom end. Part of the reason is the instruments themselves, part of it is digital workstations, part of it is the kind of gear in the recording chain. When you get to the digital realm, it's sometimes really hard to feel the low end. That's why so many people have gone back to using some kind of tube device in the chain."

A producer with years of experience in major-label A&R, Jackson's musical roots as part of the rhythm section give him his unique perspective on sound. "My biggest pet peeve lately," he notes, "is that too many engineers and mixers decide that either the kick drum or the bass is going to be the bottom end of the record. They choose one or the other, and that makes the end product suffer. On the great old records, everything in the rhythm section worked together to support the bottom end. Great mixers and engineers understand that and find the right place for the drums, bass, keyboards *and* guitars. They look at the big picture."

Okay, on to the gear: "Lately," Jackson says, "people send me their tracks so I can put down a part in my studio. I have a really simple setup so when I'm engineering by myself, I have a chain in place that I know I love the sound of. I rely a lot on my [Line 6] Bass POD Pro. With its physical modeling, it gives me any amp or speaker simulation, and it also has all the effects. I can dial in just about any sound I want. Plus, my basses all have active preamps. So I have the controls on the bass and the POD, and I go into my Yamaha 02R96 console, which I like because it doesn't add much color. Other times, I'll just plug straight into the DI input on the front of my Brent Averill [Neve 1272 preamp reissue] and then through the 02R into Pro Tools—or if I'm writing, into Logic. If I need to push any air, I have a little SWR [Mo'Bass] cabinet with a 15-inch speaker and we throw a [Sennheiser] 421 on that."

Things vary more when Jackson works with his engineer, Kevin Guarnieri. "For clean sounds, we generally use a Demeter tube DI through the Averill 1272 into one side of a [stereo] Neve 33609 compressor," comments Guarnieri. "It's one of the 'real' 1272s. For clean sounds, a Neve 1073 preamp/EQ module is also great, and I like

the Millennia Origin STT-1, which is a mic pre/EQ/compressor with the mic pre and compressor switchable from solid-state to tube. For bass, that's a great mic pre because you can get so many different tones out of it.

"Randy often uses his Bass POD Pro, but for a more aggressive guitar tone with some growl and cut, he'll play through a Guitar POD or through the TC Electronic G4 guitar box. Or sometimes I'll overdrive a mic pre or a compressor or two—or both! For example, on an SSL 4000 or 6000 console, I'll come out of the insert on one channel, patch back into the mic pre on another channel and then send it out direct through a tube compressor. I love the LA-2A for that: The harmonics on it are fantastic. You start with your output at zero, get your gain reduction in place and then crank up the input until it growls. [Producer/engineer] David Kahne recently turned me on to another good tube limiter: a Federal TV AM-864. Mine was customized for easier input level access and has about 90 dB of gain! You can plug a bass straight in and get a ridiculous tone out of it."

If Guarnieri gets his druthers, he records an amp with the DI. Sometimes, Jackson will just take a line out of his SWR Mini Mo' amp head, but whenever possible, Guarnieri prefers to mike speaker cabinets.

Favored mics include Neumann U47s and FET 47s, Sennheiser 421s and Audio-Technica ATM25s. Guarnieri notes, "I've got an old Sennheiser 422 [precursor to the 421] that I found on eBay. It's shorter and fatter and it sounds great."

To avoid phase problems, Guarnieri usually uses only one mic on a cabinet but will sometimes balance two with a Little Labs IBP phase tool. "If I'm using a 421," he says, "I poke a flashlight through the screen to find the cone and then I slightly offset the mic from the cone. I'll point it down where the woofer cap meets the cone and then pull it back a little bit—I want to give it at least a little air. When I use large condensers [U47 or FET 47], I pull them back at least a foot away from the cabinet. Some mics you run into can't handle that much transience, so you have to be selective."

The Averill preamp gets used on mics and DIs, but Guarnieri chooses different compressors, often an 1176 chained with an LA-2A. "I'm not double-compressing," he explains. "The 1176 clamps down and the LA-2A adds coloration and tone. In general, the 1176 is a fantastic compressor, but it's not full-bandwidth and it can cut

out low end and some highs. On bass, I'll put an equalizer after it to compensate: a GML 8200, Pultec EQP-1 or a Lang PEQ-2. I'll dump a little bit of supersub and maybe some mid-highs on it from those."

The two have just completed building a small recording booth, which, Guarnieri says, "is totally Auralex-ed, foamed-out and bass-trapped. It's totally dead in there—great for the bass cabinets."

BOB POWER

Acclaimed for his bass sounds, veteran New York producer/engineer Bob Power is also an accomplished guitarist and bassist. Among his credits are multiple projects with The Roots, Me'Shell Ndege'Ocello and A Tribe Called Quest, as well as work with Erykah Badu, India.Arie, David Byrne, D'Angelo and Raphael Saadiq. He was in the middle of mixing Everlast's new LP when I called.

First off, Power's listening suggestions: "Lately in heavy rotation on my iPod are Earth, Wind & Fire's *Greatest Hits* with their amazing bassist Verdine White," he says. "Anything by James Jamerson and, of course, there's Paul McCartney. When I first started recording, I thought he didn't get a very good bass sound—you know, it's all woofy and muffy. Now I realize how absolutely brilliant and singular it is, particularly in its very cool midrange approach. Then there's [producer] Tony Levin's work on [Peter Gabriel's] *So*, which is the benchmark for aggressive. And Me'Shell has a very unique sound. Can't forget [Charles] Mingus, which is kind of a weird one because, usually, modern recordists think of electric bass and 'definition.' When you listen to Mingus, it's like he's across the room, but it's still monstrous—really big."

Bob Power advises to know your gear and open your ears.

TEC Award Trio

*Thanks to the Mix Foundation for selecting both the **2192 Master Audio Interface** and the **2-1176 Twin Vintage Limiting Amplifier** as nominees for the 2004 TEC Awards and for inducting the LA-2A into the newly established TECnology Hall of Fame.*

The 2192 Master Audio Interface combines UA's analog heritage with our digital design innovation. Combining a 24-bit/192K Stereo AD & DA, Clock Distributor & Transcoder, the 2192 is the studio "reference". Also recognized with both a PAR Excellence and EQ Blue Ribbon Award, the 2192 is changing the industry's idea of what "digital" can really sound like.

After 35 years of compressor design, the 2-1176 Twin Vintage Limiting Amplifier is the modern stereo incarnation of the worlds best loved compressor. Using the "Rev.D/E" circuit design from the 6176, the 2-1176 offers dual mono/stereo link operation with true matched FET's at an unbeatable price.

Surf over to www.uaudio.com to see all the award-winning audio hardware & software only from Universal Audio.

6176 Channel Strip – TEC Award Winner 2003

2192 Master Audio Interface – TEC Award Nominee 2004

2-1176 Twin Vintage Limiting Amplifier – TEC Award Nominee 2004

www.uaudio.com • toll-free: 1-866-UAD-1176
330 Encinal St. • Santa Cruz, CA • 95060-2101 • USA
voice: 831-466-3737 • fax: 831-466-3775

UNIVERSAL AUDIO

analog ears | digital minds

CONSOLE SHOPPING?

Engineer Mark Zeboski at the Fairlight DREAM Constellation digital console in Studio A at Chicago's Audio Recording Unlimited (ARU)

Jarvis Studios in New York City boasts a 16-bus, 64-channel (all-input) analog API Legacy with 64 550 equalizers and Flying Faders automation.

In the world of marketing, high-end pro equipment and budget recording gear have one thing in common: They both use a relatively simple sales pitch. On the superexpensive side of the console market, the product thrust is straightforward: "Behold the best. You'll pay dearly for this superior quality, but we know that professionals such as yourselves are good for the cash." On the flip side, the message is equally simple, yet contrary: "Isn't it amazing how many features are packed into this incredibly small product for this incredibly low, low price?"

But somewhere between the megabuck beasts and the mixers sold in Everytown's mass-market stores lies an impressive selection of mid-priced products designed for the working pro studio's day-to-day needs.

Examining the mid-priced console market in 2004, we've noticed the availability of some excellent consoles—ones that are arguably high end—for a wonderful price. Here, we define "mid-priced" as consoles in the $50,000 to $150,000 range. Within it are some incredible performers, from complete, all-in-one digital recording solutions to classic-style analog desks with superior electronics. Read on for a collection of consoles that offer high-end quality without the high-end price tag.

The Amek (www.amek.com) Media 51 multiformat analog console features Rupert Neve–designed mic preamps, 4-band channel EQ with fully parametric mids, swept high- and low-frequency with peak-shelf switching, and swept high- and lowpass filters. Eight aux sends, a stereo solo system and soft mutes on both signal paths within each channel are also standard. The console has mixing capability for 5.1, monitoring capability for 7.1 and monitoring for up to four external stem mixes.

Media 51 features Amek's universal Supertrue™ fader, switch and event automation as standard, allowing intuitive and flexible setting control. The included Supertrue Version 4.0 automation encompasses Amek's proprietary virtual dynamics, recall, visual FX, synchronization to SMPTE and software control of external components. Available in 32, 48 and 64-channel frame sizes, the Media 51 is priced at $49,950, $69,950 and $89,950, respectively.

API (www.apiaudio.com) is no stranger to high performance with its emphasis on no-compromise analog circuits. Although the company's Legacy consoles are priced from $100k, a more realistic starting figure hovers around $125k. For example, a 32-

BY STROTHER BULLINS

Choices Abound in the Middle Ground

This Digidesign ICON digital console/worksurface is installed at the company's headquarters south of San Francisco.

Slated to start deliveries last month, this SSL AWS 900 DAW worksurface/ analog console resides at its demo room near Oxford, England.

channel Legacy with API's classic 550 Series 4-band EQs, 16 212L all-discrete mic preamps and patchbay lists at about $130,000. The console can be configured with its channels in a split or all-input design. Other basic features include 16 main buses, two stereo buses, six aux sends (five mono, one stereo) and a totally modular design that allows buyers to easily add preamp modules as needs grow. The Legacy also offers frames of up to 64 channels and a choice of the standard long-throw P&G faders or optional moving fader packages from Uptown (900 or 1200 Series) or Flying Faders.

The Audient (www.audient.com) ASP8024—conceived, designed and created by Audient founders David Dearden and Gareth Davies—is an analog, full-featured in-line desk with 24 track-assign buses and 14 aux buses. Each channel of the ASP8024 features a 4-band splitable equalizer that can be switched into the channel's short signal path. The center section offers comprehensive metering, monitoring and foldback capabilities with main monitor outputs. Additionally, the center panel offers three alternative speaker outputs and a built-in stereo bus compressor. Available in 24 to 60-channel configurations, the modularly constructed ASP8024 starts at $50,000.

Wilmington, Del.–based Geoff Daking & Co. (www.daking .com) has been making high-performance analog gear for 10 years. The company offers an 8-bus console on a semi-custom basis (each is built to individual client specs), with most priced in the $33k to $99k range. The mixers feature an all-discrete, Class-A transformer-coupled topology; Jensen audio transformers throughout; 4-band EQ with HP/LP filters and five selectable center frequencies per band; four aux sends (pre/post-switchable); auto-mute group muting; stereo in-place solo or destructive solo with solo safe; and direct outs on every channel.

Unveiled at April's NAB convention in Las Vegas, Digidesign's (www.digidesign.com) ICON is a fully digital integrated console

and complete audio production environment centered on the new D-Control tactile worksurface. Using Pro Tools|HD Accel as its core DSP engine and modular Pro Tools|HD audio interfaces for analog and digital I/O, ICON transforms an elaborate DAW controller into a full-blown digital console.

ICON's D-Control worksurface has built-in 7.1-channel panning, touch-sensitive controls, full processing and routing control per channel, and an expandable architecture with room for extra fader banks. Integrated remote mic preamps are included, and optional Avid picture support increases ICON's appeal for post users. Each channel strip of the D-Control includes six rotary knobs with LED rings, a six-character scribble strip, mode switches, status LEDs and a P&G fader. ICON comes with XMON, a rackmountable analog monitor system controlled via D-Control. XMON provides access to two 8-channel monitor mixes, three speaker feeds, three stereo cue outputs, a studio monitor feed and a headphone output.

As an adjunct to an existing Pro Tools|HD Accel system, the base ICON configuration adds another $59,995 to the package and includes a 16-fader D-Control module, stand and the XMON monitor interface. Currently, ICON's maximum configuration is 80 faders; additional 16-fader modules are $29,995 each.

Fairlight's (www.fairlightau.com) DREAM Constellation large-format digital audio console offers a high-end recording, mixing, automation, plug-in and editing solution for a relatively low price point. Replacing Fairlight's DREAM console, the TEC Award–nominated Constellation is powered by Fairlight's QDC engine and incorporates the company's Binnacle editing model. The Constellation's ability to edit automation and audio simultaneously allows clips, tracks, ranges or complete projects with previously written automation moves to be carried forward with the audio.

Constellation supports up to 144 channels, 48 buses and 32 mono multitrack buses. Each channel features 6-band equal-

ization and filtering, while two-stage dynamics processing is available on up to 96 of the desk's inputs, plus 48 returns with 2-band EQ. Accommodating up to four QDC cards, the powerful Constellation is 7.1 surround–ready and offers a flexible monitoring bus system. The DREAM Constellation system starts at $111,000.

Chicago-based Sytek Audio Systems (www.sytek-audio-systems.com) has two very capable analog consoles fitting the mid-priced criteria: the Neotek Elan II and Neotek Elite II. While both consoles feature the same impressive Neotek microphone preamp and high-quality circuit design, the less-expensive Elan II foregoes some of Elite II's more complex and less-used functions to keep costs down.

The Elite II—Neotek's flagship console—features dual-channel signal architecture that is neither a split nor an in-line monitoring I/O module approach. Instead, each input module contains two distinct audio paths that are independently operational. Each channel of the Elite II features a sweepable, frequency-style 4-band equalizer and filter, and the console offers

Cedar Rock Studios (Shelburn, Ind.) installed a Trident Series 80 5.1 console.

additional perks such as a second stereo bus, solid-state muting circuits, flexible automation options and an optional multiformat monitor, which provides a full feature set for monitoring in LCRS or 5.1 environments.

The Elan II features an in-line monitoring design, although many aspects of the Elite II are present within its smaller sibling, including 4-band EQ and the optional multiformat monitor. A 48-channel Elan II is priced at $52,000, and the Elite II ranges in price from $65,846 for the 32-input model to $149,982 for the 96-input model.

John Oram, owner of both Oram Pro Audio and Trident Audio (www.oram.co.uk), offers a trio of high-quality, mid-priced analog consoles: the Trident Audio Series 80 5.1, the Oram Series 24 and the Oram BEQ Pro24 5.1.

The first new console from Trident Audio, the Series 80 5.1 console is a classically designed desk and features a reproduction of the mic pre and 4-band EQ from the original Trident Series 80, which includes two swept mids and switchable high- and low-shelving mids. While the Series 80 5.1 maintains a retro analog sound, it's ready for modern productions via full 5.1 capabilities. The center section includes the John Oram Hi-Def EQ and dual circuit compression unit.

The Oram BEQ Series 24 and Pro24 5.1 consoles are 24-bus production desks and feature identical microphone preamps and channel EQs. While the Series 24 is suited for stereo-only recording facilities, the surround-ready Pro24 5.1 offers increased performance and includes eight group faders, eight aux sends, eight auxes via small fader routing, 5.1 routing with a sub-output mix matrix, eight stereo returns with EQ and a

New Jersey is home for this 48-input Amek Media 51 at Taylor-Made Productions, owned by engineer/composer/producer Glenn Taylor.

The new home of the Philadelphia Orchestra, the Kimmel Center for the Performing Arts has an Audient ASP8024 analog console.

Producer/composer Jack McKeever at the custom Daking 32x8x2 console at "The Maid's Room," his facility in New York City.

Engineer/producer Steve Albini relaxes at the Neotek Elite II installed in Control Room A at Electrical Audio, his two-studio complex in Chicago.

stereo hi-def EQ Sonicomp compressor. The Pro 24 5.1 also offers a sub-bass output with a built-in crossover. The Trident Series 80 5.1 starts at $63,000, and the BEQ Series 24 and Pro24 5.1 are priced as low as $45,000 and $63,000, respectively.

To make a big understatement, Solid State Logic (www.solid-state-logic.com) is not a manufacturer regularly associated with mid-priced recording consoles. However, recognizing the potential sales possibilities

DIGIDESIGN | ICON
INTEGRATED CONSOLE

Experience the ultimate professional audio
production environment for music and film:
the Digidesign® ICON integrated console.

Visit www.digidesign.com to learn more about ICON.

Fully modular, state-of-the-art console control • Pro Tools | HD® Accel DSP and I/O resources • 192 kHz sample rate support
Industry's finest plug-in options • Automatic Delay Compensation • Integrated video and delivery • Total session recall

d digidesign

within this price range, SSL recently unveiled the AWS 900 Analog Workstation System, which employs a full-featured SuperAnalogue signal path with a DAW controller. Guitar Center's GC Pro stores will handle sales, service and support for the AWS 900.

Resembling a miniature SSL 9k, the 24-channel AWS 900 features switchable SSL E or G Series 4-band parametric EQ; assignable SSL dynamics with gate, expander and compressor/limiter; a G Series stereo main-mix bus compressor; and metering on all channels and main outputs. The desk can also function as a stand-alone 8-bus desk. The AWS 900's DAW controller system offers a color TFT display to view DAW plug-in settings and status information, along with intuitive DAW control and motion-control panels. The controller provides direct access to all major DAW mixing, editing and automation parameters and has a dedicated control CPU. There's only one configuration for the AWS 900 and only one price: $85,000. An optional console stand is available.

The Soundtracs (www.digiconsoles .com) DS-00 digital console is an infinitely

One of several Soundtracs digital consoles in use by the CBC, this DS-00 at CBC Radio in St. John's, Newfoundland, is used for music and drama production, and TV post work.

Orange Whip Recording, a Chris Pelonis–designed studio in Santa Barbara, Calif., features an Oram Series 24 analog desk.

One of two TL Audio VTC tube consoles installed at EMI Publishing's studios in London's West End

heat travels up and out through the vents in the bridge. As a result, the VTC's electronics and control surface stay cool.

Distributed in North America by HHB Canada, the TL Audio VTC is available in configurations up to 56 channels with an optional bar graph meter bridge. A fully loaded 56-channel VTC desk sells for $57,000; its optional meter bridge is priced at $4,700.

Strother Bullins is a North Carolina–based freelance writer specializing in the professional audio and entertainment industries.

flexible and wholly expandable desk, suited for use in a variety of settings including broadcast, music recording, live sound, film and post-production. The DS-00 comes standard with 64 channels of full processing, 40 buses and 7.1 surround mixing capability. It also includes eight analog inputs, 16 analog outputs, 24 AES I/O with sample rate conversion for each XLR connection and eight I/O optical connections.

Each DS-00 channel offers eight equalizers, including six fully parametric bands, high- and lowpass filters in the sidechains, dynamics processing and access to all 40 buses. A total of four EX-00 8-fader expansion units can be added to the DS-00, making it possible to build up to a 49-fader surface. Each EX-00 offers a TFT touchscreen and full metering. Designed to be part of a complete recording, mixing and editing system, the DS-00 has a dedicated MADI I/O to connect to DiGi-TRAC's show recorder or another hard disk unit. The DS-00 main fader surface is priced at $68,072, and EX-00 expander units are $14,433 each.

British manufacturer TL Audio (www. tlaudio.co.uk) offers the Valve Technology Console (VTC), an original desk featuring innovative tube (or "valve," if you're speaking the Queen's English) technology throughout. The fully modular, in-line multitrack mixer uses TL Audio's acclaimed tube circuitry within its channel, monitor, group and master section signal paths. The tubes aren't just a perfunctory addition to the desk; they are crucial parts of the VTC's signal path. For instance, every channel and Mix B preamp includes an ECC83/12AX7A tube stage, as well as the Group, Mix B and stereo master mix amplifiers. While recording to tape through a group, a VTC user will bring signal through two tube stages and two additional stages on mixdown for a total of four valve stages in the signal path.

The tubes are positioned within the meter bridge section of the desk and all tube

David Crosby and Graham Nash

Breaking Down the Walls With Producer/Engineer Nathaniel Kunkel

Passing outside Center Staging in Los Angeles, it would be difficult to imagine what was taking place within the large rehearsal complex. Inside, David Crosby and Graham Nash were collaborating on their first duo album in 26 years, in an unconventional, open recording environment pioneered by producer/engineer Nathaniel Kunkel. Kunkel—whose recent credits include working with Sting, James Taylor, Crystal Method, Deep and Bites, and Lyle Lovett—built a portable recording package he calls

Studio Without Walls. With this high-end, high-resolution collection of gear, Kunkel can work almost anywhere—from Sting's home in Los Angeles, to live concerts, to Center Staging, where they are tracking Crosby Nash, due out this month on Sanctuary Records. Rounding out the talent roster are Lee Sklar on bass, Dean Parks and Jeff Pevar on guitars, Crosby's son James Raymond on piano and Kunkel's father, co-producer Russ Kunkel, on drums.

MIX ONLINE EXTRAS

David Crosby perfects a guitar track. "We gave everyone good headphone mixes," says Nathaniel Kunkel. "You have a head unit that you plug 16 channels into and a Cat-5 Ethernet cable that goes to a router with power. Everyone had their own headphone mixers. We put 50-foot cables on all of them so people could take their headphone box wherever they wanted."

A well-stocked studio on wheels: Nathaniel Kunkel's mobile gear racks feature three Genex 8-channel A/D converters, an Alan Smart C1 limiter/compressor, two Empirical Labs Distressors, a host of GML and TC Electronic gear (including 12 channels of GML mic pre's and four TC Finalizers), a Z-Sys 8x8-channel router, an Otari UFC-24 multitrack digital-format converter, a DTS professional encoder and decoder, a Tascam DA-78 HR digital recorder with AES interface and a Brainstorm Electronics Distripalyzer. The mic assortment, however, was kept to a minimum: "Just about every microphone was from Audio-Technica, except for my Neumann U67 on vocals, B&K 4011s on acoustic guitars and drum overheads, Shure SM57s in front of the guitar amps and a Sennheiser MD-431 on snare," says Kunkel.

David Crosby's son James Raymond (pictured at the piano), carrying on the musical tradition: "When David was in danger of dying with his liver transplant, he was on the cover of People magazine," says Graham Nash. "James' adopted parents, who are wonderfully warm people and brought him up magnificently, knew who his father was. Because he was in danger of dying, they felt they owed it to James to tell him. And when they told him, he wanted to meet David. Now he is in David's band, CPR." Raymond's piano was miked with Audio-Technica 4050s.

Left: Crosby and Nash harmonize into a Neumann U67. Right: Producer/engineer Nathaniel Kunkel takes a quick break from his Pro Tools rig.

"What Nathaniel does that is most valuable, apart from his technical expertise and his sense as a musician, is that he shortens the distance between my idea for the music and the recorded music," says Graham Nash. "Instead of an idea taking 10 minutes to do, it takes 20 seconds and then I am on to the next thing. That is unbelievably important to us as musicians."

"He really gets what the content of a song is and understands what you are trying to do," adds David Crosby.

Guitarist Jeff Pevar (pictured below) works out a riff while Graham Nash looks on. "It's always live when you are working with this caliber of artists and musicians, so ultimately, getting comfortable is the most important thing," says Nathaniel Kunkel. As for isolation issues, Kunkel explains that a logical approach is the key to success. "If you want bashing drums and really loud guitar and piano, you can't cut them all at the same time. You have to use your head because you are not in a traditional recording studio, but you can work anywhere you want and capture any moment that is being created."

Drummer Russ Kunkel, pictured between takes. "I've known Russell since he was 19 years old," says Graham Nash. "He was on every Crosby/Nash record that we made and he was the drummer in the 1974 stadium tour that CSNY did, so we go back a long way." Son Nathaniel miked the set with Audio-Technica ATM 25s and 35s, along with B&K 4011s on overheads, a Sennheiser MD 431 on the snare drum, and a Shure Beta 52 and Yamaha SubKick on the kick drum.

Nathaniel Kunkel's Studio Without Walls is based around a Sony DMX-R100 console (pictured at right), a Pro Tools|HD2 rig and JBL LSR 5.1 monitoring system, all in a large, open space. "It's a great way to work because I don't have to press a talkback button and walk through three doors," says Kunkel. "There is no more compromise about this setup than if I were to do it at a big traditional recording studio."

"I couldn't imagine doing it any other way now that I've done it this way," adds David Crosby. "The communication is so much faster and clearer. The proof is in the pudding."

SAE Takes a Bite Out of the Big Apple

International Audio School Chain Continues to Grow

The state of audio education in New York, and more specifically, New York City, just became even more accommodating. SAE Institute (www.sae.edu) has expanded its presence in Manhattan with an attractive new campus in the bustle of mid-town's Herald Square, bringing a distinctly European mindset and the backing of an international multimedia education brand to one of America's most talented towns.

SAE's move to bigger and fresher quarters was made necessary last year when *The New York Times* bought out the block that held its previous building. The result is an open, airy facility with gently curving interiors that gives potential audio students another good learning option in a city that is home to a steadily increasing number of audio education programs. The complex houses 33 studios/labs/personal workstations, including two flagship rooms with a Neve 88R and SSL 4000 G+, as well as multiple Pro Tools/Mac G5 rooms and MIDI production suites, Mackie HD2 recorders and a Control|24 surround suite with THX-certified monitoring courtesy of Blue Sky International. With a curriculum that includes surround sound and DVD authoring, the school is fully equipped for today's market.

According to SAE president Tom Misner, the expansion New York City campus reflects a trend that SAE has encountered in several other large cities where it does business. "Growth is fueled simply by demand," he says. "[Our schools in] Munich, Paris, Amsterdam and Hamburg are all just doubling in size, and to do that, they're all moving to new premises because they can't enlarge where they are.

"The reason that there's more students is because the music business is changing. Big recording studios are needed, but they are dying," Misner continues. "A guy can go home, buy himself a laptop and start making music—very successfully, too. The smart ones might go to

By David Weiss

SAE director Udo Hoppenworth (left) and president Tom Misner at SAE's new New York City campus

Transform a Master
into a Masterpiece

MASTERING 6000

Mastering 6000 is the latest addition to the prominent System 6000 family. Packed with a choice selection of precision tools for the mastering engineer, it is dedicated to the highest audio quality and the lowest production time. Mastering 6000 comes with the new MD4 5-band Compressor/Limiter, Toolbox 5.1 for mono, stereo, matrixed surround and 5.1 productions, and an enhanced Brickwall Limiter. All of the legendary algorithms from Reverb 6000 and other optional licenses can be added to Mastering 6000 if required. For more info about Mastering 6000, please visit www.tcelectronic.com/mastering6000.

SYSTEM 6000
Mastering 6000: Stereo Mastering, Multichannel Mastering, Monitor Matrix, VariPitch.
Reverb 6000: Stereo Reverbs, Multichannel Reverbs, Stereo Delay, Multichannel Delay, VariPitch.
Optional licenses: Massenburg Design Works HiRes EQ®, Unwrap, BackDrop.

WINNER
SYSTEM 6000

t.c. electronic
ULTIMATE SOUND MACHINES

World Radio History

SAE

the mixing studio for two days and then they go to the mastering studio, so now it's just two days in the studio. So that's the point: We train people on Neve, SSL and Digidesign, because we don't know where they'll end up."

For Misner and Udo Hoppenworth, director of SAE New York, the new campus, which features ninth-story views, lots of natural light and a flow-through design that makes it easy to connect multiple live and control rooms, was a chance to not just give students more space, but an enhanced over-

SAE New York's Neve room

all experience. "In New York City, initially we had a different location that was much smaller—half the size," Misner recalls. "Then the opportunity arose here, and we created a better-looking school. If you're in a nice facility, you'll be motivated. It's important that the student be motivated leaving here because that will make them successful."

SAE also took the unique needs of the local clientele into account when creating the new facility. "The type of student that New York City attracts is definitely unique," Misner notes. "The fact that New York City has a special status, besides the audio industry, is reflected here. We have a bigger percentage of international students. The course adapted to the local market—it's not the same course in London. The New York student wants to be guided. They want to do it on their own time, but they're into it when you say, 'Here's your project. This is what you have to do.' The London students don't like that at all. They say, 'How does it work? I'll do it myself.'"

Misner continues, "What we were trying to do—moving from the old location to the new location—is expand on the possibility of giving studio time to each individual student, so

we made more individual studio rooms and MIDI suites, which we didn't have before. We have MIDI suites using Emagic Logic and [MOTU] Digital Performer, separate monitoring systems and increased flexibility. We made the place more flexible in terms of working, so we could basically use everything with everything. We have a book for allocating studio time, which makes it very efficient: A student here books the time two to three weeks ahead, so it's very easy in terms of administration. If you put more energy into this course, you get more out of it. We're open on Saturday nights, and you can easily double your hours, but you wouldn't pay double— you just get more out of the program."

"Regarding the booking system, there's a minimum that we define that the students have to do, but they can spend lots and lots more time using the studios," Hoppenworth adds. "A student who's here can spend more than a normal work week just basically studying. We have labs open from 10 a.m. to 2 a.m."

Multimedia studies such as filmmaking are also part of the curriculum on many SAE campuses. They're not available in New York City yet, but they will be. "Adding the film program is definitely on the agenda," says Hoppenworth. "In designing the facility, we thought ahead to have that space. Basically, we'll focus even more on individual time by implementing systems where students will have their own laptop all the time. Everything has become more software-based, so instead of booking your workstation, it will be your own laptop supplied by Apple. Even within the audio program itself, there's a variety of different categories that we teach. In many cases, students initially want to do music recording—they don't want to know what post-production or mastering is. There are fields within audio where the students don't know the job possibilities."

Ultimately, the goal at SAE New York and its 40 other campuses worldwide is to stay on top of the fast-moving developments in multimedia, an imperative Misner has followed since he started the school in 1976 with a Tascam 8-track. "This industry is ongoing change," he says. "The most gratifying thing is that the students are making it in the industry. The most challenging thing is to continually stay on top, anticipate the market and provide a really good service." ∎

David Weiss is Mix's New York editor.

PHOTO: HERB DISHMAN

BY BLAIR JACKSON

Malcolm Burn

Daniel Lanois' Right-Hand Man Builds Successful Solo Career

For many years, Ontario-born Malcolm Burn has been joined at the hip (so to speak) with fellow Canadian producer/musician Daniel Lanois. He played on, engineered or mixed (or all of the above) some of Lanois' greatest productions, including Bob Dylan's *Oh Mercy*, Peter Gabriel's *Us*, the Neville Brothers' *Yellow Moon*, Emmylou Harris' *Wrecking Ball* and Lanois' own masterful debut album, *Acadie*. In turn, Lanois has appeared on a host of albums produced by Burn, including the Nevilles' *Brother's Keeper*, Chris Whitley's *Living With the Law* and Harris' recent masterpiece, *Stumble Into Grace*. The two share a love for great songwriting and adventurous sonics, including the wonderfully musical atmospherics, creatively employed effects and unusual instrumental colors that give their productions a distinct feeling and sound.

On his own, Burn has also helmed releases by the likes of Lisa Germano (*Happiness*), John Mellencamp (*Human Wheels*), Iggy Pop (*American Caesar*), Shawn Colvin (*Sunny Came Home*), Midnight Oil (*Breathe*), Patti Smith (*Gone Again*) and many others. When we caught up with Burn at his Ulster County, N.Y., home, he'd just finished a project in England with a British rock band called Grand Drive and was working with Luthea Salom, a talented singer/songwriter. This summer, he's cutting another album with Whitley, this time in Dresden, Germany. And long-term, Burn is working on a second solo album. Though he's happy to talk about production, Burn notes, "I want to stress that I am a musician and a songwriter myself, even though I produce and engineer records. To me, that's part of being an artist, and I consider the recording studio sort of a workshop for sonic creativity first and foremost." Duly noted.

How and when did you and Daniel Lanois become fellow travelers? Obviously, you guys share a certain aesthetic or something.

It must be in the water, eh? [Laughs] In the early '80s, I had this band in Toronto called Boys Brigade, which was sort of post-punk. This was the New Romantic era—Duran Duran and all that. U2 was another big influence at that time. I was also really interested in these records that were coming out by this group called Material, with Bill Laswell and Michael Bienhorn. They were combining funk with African influences and pure kick-ass rock 'n' roll guitar. So that was a major influence on me.

Another guy I really liked a lot was Brian Eno. I'd been listening to him for a while and was just really struck by his creative approach. I remember I used to read these keyboard magazines, and one month, it would be Rick Wakeman [of Yes] on the cover and the next it would be Keith Emerson [of E.L.P.]; all the prog rock guys, which I really couldn't stand. Anyway, one month they had a story on Brian Eno and they asked him about what keyboards he uses, and he said, "Well, I've only got two, and one is this Elka or something that tends to forget the programs and rewrites them, and every time I turn it on, I've got a bunch of new sounds, but for me, that's really interesting." That was one of the things that made me take a keen interest in what motivated people to do what they do and express themselves in their own way instead of just emulating others.

At some point, I heard that Eno was hanging around in Hamilton with Dan [Lanois] at Dan's studio—which he and his brother Bob had—called Grant Avenue. So I became quite keen to work with Dan because of the Eno connection. When my band started to get popular down in Toronto, Dan's girlfriend brought him to see us. Unfortunately, it was a terrible gig, just awful; one of those nights when nothing worked. But I guess Dan liked it enough that he then requested a meeting with the band. So we met with him and he was really quiet. Then one of the guys in the band and our so-called manager at the time went down

to see Dan's studio. They came back and said, "Oh, this Lanois guy's not goin' anywhere. It's kind of a Mickey Mouse studio. Who wants to make a record down there? They don't have that much equipment. We want to work with someone *famous*." I was young and believed that bands were democracies and the decision was made to work with Geddy Lee [of Rush] instead. Geddy was a great guy and he worked really hard and made a good record for us. It was all part of the business situation.

So a few years passed. Dan, instead of making our record, worked with a band called the Parachute Club and made a pretty successful record for them. I think it was a Top 10 record [in Canada]. He also worked with Martha & The Muffins and did well with

bass sound that still sounded like bass, whereas if you needed an acoustic guitar or a vocal that needed more fidelity, you did those last.

Anyway, I was using fairly primitive stuff to record with, and one day I said to Dan, "Look, I've been working on this stuff and I think it sounds really good, but I'd love to hear what you think." I didn't tell him I'd recorded it in my bedroom or anything. So he listened to it and he said, "That's a great sound! We've been trying to get a guitar sound like that for The Edge [guitarist of U2] and we haven't been able to. What are you doing up there?" So I said, "Well, I'm using my little Tom Scholtz Rockman and my Stratocaster up in my bedroom." He was pretty impressed. And

> ## If you can make a good cassette copy, you can make a great record because that's where it all starts: that idea of having a pretty limited format and making the most of it.

that. Years later, as it turned out, I was dating Dan's sister Jocelyn and he came to pick me up at the bus station. I hadn't seen him for five or six years at this point. In the meantime, he'd worked with U2 and done Peter Gabriel's record *So*. He was doing pretty well. And he shows up and the first thing he said to me is, "So, you never called me back." "Yeah, I know." "You f***ed up." And we both laughed. He said, "Rodney Dangerfield should have produced your record. At least you would have had a few laughs." So that's how we became re-acquainted.

How did you start actually working with him?

I had been recording a bunch of stuff in my bedroom on a little TEAC 4-track Portastudio. My attitude is if you can make a good cassette copy, you can make a great record because that's where it all starts: that idea of having a pretty limited format and making the most of it. And I really made so much of it. I would record back-and-forth on three tracks [of the Portastudio] and keep submixing and submixing and then eventually I'd do a stereo premix to a 2-track reel-to-reel that I had and then I'd bounce back to two tracks. While I was bouncing it, I'd do some more overdubs. I got pretty good at it.

Hey, it worked for The Beatles.

Right. And I didn't realize that what I was doing was the exact same thing Les Paul had done. [Laughs] He would record the instruments that required the least fidelity first, so in the degenerative process, you had a

we started working together shortly after that. We worked on *Acadie* and some other things.

It always struck me as being a pretty casual division of labor on the projects you did together. You both play, you both know the equipment. What was it like on Dylan's Oh Mercy, *for instance?*

Dan wanted somebody in there who wasn't just a knob-turner. He wanted somebody who could set everything up, but could also grab an instrument and play along and have a more musical picture rather than some technocratic operative. In terms of that record, there was a good balance between Dan and Bob [Dylan] and myself. Bob and Dan were kind of equal on a certain level, and I was a more neutral third party to sort of balance things out.

Were you awed by Dylan?

A little, as a songwriter, of course. We caught him at a very good time. He had sort of been rejuvenated by the success of the Traveling Wilburys record. I think that made him feel like he was still relevant and had some things to say. And I'll tell you what— he's a damn hard worker. There are few people I've worked with in the studio who work as hard at their craft as he does.

Even though he's sort of famous for being Mr. First Take?

That's not necessarily true. What he does— or at least on that particular record and on the *Time Out of Mind* record, as well—is he'll keep searching for the arrangement

he likes: faster, slower or 4/4. Should there be piano or guitar; this key or that key? And you're trying to follow him. But by the time he's decided all that, it goes pretty quickly because he's satisfied.

I've got some really interesting recordings of him—which I'll never divulge—sitting there playing the song "Most of the Time" and saying, "I can do this song this way or this way or this way," and each time he plays it, it's like a completely different song. He does a sort of 'Bob at the Newport Folk Festival' way, then he does a grungy electric version and then he does a blues version. The lyrics probably aren't going to change much, but everything else is negotiable.

Another album you and Lanois worked on that really knocked me out was the Neville Brothers' Yellow Moon. It's so unlike their other records.

Yeah, that's true. I really wanted to work on *Yellow Moon*, but I was really nervous going into that record because I thought, "Shit, I don't know how to record drums. I don't know what to do." [Laughs] Then the first day, Dan says, "By the way, I don't want any drums on this record." "Great! You've come to the right guy." [Laughs] So everything was done with hand percussion, which was great. It's so much a part of the sound of that record. Instead of drums, the bass is right up front and it's really the driving instrument.

What an amazing thing to do with a band that's famous for it's second-line drumming. Obviously, there's a level of trust, cooperation and collaboration you guys are able to engender that allows the people you work with to get out of their conventional thinking, too.

With the Nevilles, I think they trusted us and thought that we knew what we were doing for some reason. We'd be in there playing with them and coming up with ideas together. They were very open to trying something different.

The biggest problem I have when I work with an artist is trying to stay out of the corn patch.

The corn patch?

The corn patch is the place you go where cornball ideas take hold—you gotta stay out of the corn patch! Bands will quickly fall into the corn patch. Basically, they want to give the people what they want. They have to survive. And people like that have a corny side.

Recently, on this song Grand Drive was doing, I thought, "Oh my God, if we do this song the way it's written, it's going to sound like a cheesy ballad from 1985 and I don't want to go there." I don't even know *how* to go there; I have no idea how to do a big rock ballad. So the band started playing the track and with *tons* of enthusiasm, I said, "Guys, I think I have another idea for this track and I'm really convinced it's going to be fantastic. It's going to be *transcendental* by the time we're done with it." And I gave them a very convincing and enthusiastic picture of what I wanted to do. And at the end, they went, "Oh, okay." The song is called "I Believe In Love."

Yikes! Wasn't that on a Foreigner album or something?

[Laughs] Actually, it's a really good song. There's nothing wrong with that sentiment, obviously, but you have to do it the right way. So rather than having them go out and play it like a band, which is how we'd been working, this is going to be a complete paint-by-numbers construction job that's really different. It sort of sounds like U2's *War* record. And by doing it that way, the song took on another meaning.

What was the first production you did on your own in which you felt you nailed it?
The first record I ever produced was a record called *Red Earth* by a band called Crash Vegas, a Canadian band, and I love that record. I love the simplicity of it. It was done on an 8-track, 1-inch Studer machine.
Tell me about working with Emmylou Harris. Daniel produced Wrecking Ball, *which you also helped with, and now you've produced the last two albums.*
Emmylou can work with anyone she wants, and to her credit, when it was suggested she work with a new producer, she wanted to try something different. At the top of her list was Dan because of the *Oh Mercy* record. A lot of the records she'd liked were ones

> If I'm going to be in a "normal" big studio, I want the big-ass speakers. I want those big things they've got in the wall.

Dan and I had done together, so it made sense to make me a part of the equation, too. On the *Wrecking Ball* record, although I didn't produce it, I was quite involved in the song choices. I was the one who brought in the Neil Young song "Wrecking Ball" and "Every Grain of Sand" by Bob [Dylan]. And I was involved in some of performances and arrangements. The bulk of that record was done at Woodland in Nashville, which is now Dave Rawlings and Gillian Welch's place.

Then when she was ready to do another record, I think Dan felt as though he didn't want to go back and try to re-create something we'd already done, so he suggested that I do it, and Emmy was already comfortable with me, so it wasn't a big step.
And that was done at your former studio in New Orleans.
Most of it was. That studio was sort of like a poor man's version of Kingsway [Lanois'

New Orleans studio]. It was a funky little house but it had a nice feeling to it and it sounded good. That record was recorded to 2-inch. Most of it was recorded on a Mackie with good microphones and preamps. I couldn't afford the big API at the time. But I dare anyone to tell me *Red Dirt Girl* doesn't sound good.
How did the songs that Emmylou wrote for that record and the new one shape the overall aesthetic? There are lots of effects and compressed parts, odd atmospherics.
A lot of that record was her coming up with the basic idea for the songs and then me creating loopy, groovy things underneath. At that time, I was using an Ensoniq ASR10, which is the Ensoniq version of an MPC 60—sort of sampler, sequencer, drum machine all in one unit that I became quite clever at. That became the basis of a lot of the tracks on that record. Now if I'm going up that street, I'll use Reason.
How much of what we hear is room ambience as opposed to processing?
A lot of it; probably more than I would have preferred at the time. [Laughs] Which is probably why the recent record [*Stumble Into Grace*] is more controlled.
Where was that done?
Two studios in Nashville. One called Masterlink, which used to belong to Al Jolson.
Al Jolson owned a studio in Nashville? Mammy!
It's still owned by Al Jolson Enterprises. It's a great place; I highly recommend it. It's one of the last great dedicated studios. Big room, nice control room, not a lot of bullshit to deal with. It's got that wood paneling, shag carpet vibe that I love. [Laughs] So a good portion of it was done there and then we also worked at Sound Emporium. My attitude is if I'm going to be in a "normal" big studio, I want the big-ass speakers. I want those big things they've got in the wall.
Was Stumble Into Grace *recorded to 2-inch?*
It was initially recorded onto 2-inch and then, because we had to change location a number of times, we went onto RADAR. I'm a big fan of RADAR. I like the idea of a dedicated recorder: The system only does *this*. It's a place to record your music as opposed to record your music, download pornography, play video games and everything else. I've never had a problem with RADAR. It sounds great, it's easy to use. You can still hook it up to Pro Tools for editing if you want. If and when I decide to upgrade the system I'm using at home, it'll probably be to RADAR.
What do you have at home for recording now?
I have my 2-inch Studer 800 24-track ma-

chine. I have Pro Tools; not the HD.

Are there producers out there who impress you currently?

Not really. I hear a lot of producers who are sort of bland versions of me and Dan. What annoys me to no end is this endless lineup of ex-musicians in their 30s and 40s who have decided they can't make it in the pop world so they want to produce records. I'm not going to name names, but they're taking my work away! They're making bland versions of my records and I don't like it. It's sort of "lite" *whatever*. All the interesting stuff has been extracted and you're left with this—*nothing*. You take out anything that will challenge anyone and leave the remnants. That's not something that's going to make me want to go out and buy a record.

Actually, there is a guy I like named James Lavelle who runs a label called MoWax out of England. They put out the DJ Shadow records, and he did one recently called *Never Never Land*—UNKLE is the name of the project. That new record is a beautiful combination of electronics, great sounds, heavy grooves, interesting songwriters—he's got Ian Brown [ex-Stone Roses] and some other interesting people on there. It's really got its own sound.

Every producer has a couple of pet projects that, for whatever reason, fell under the radar. Anything you'd like to plug?

Yeah, there's a band from New Orleans called The Geraniums and they have a singer/songwriter, Brendan Gallagher, and his co-writer [Jeff Treffinger], and those guys are writing some of the most unbelievable lyrics—stuff that's as good as Dylan's; I'm not kidding. I did their first record and I would highly recommend those guys. Jeff runs a place called the Mermaid Lounge in New Orleans.

How do you choose your projects at this point?

Mostly, I look for excellent musicians and songwriters. My favorite all-time group is The Band. The thing about that group is it was this amazing combination of great songwriting, great singing, a lot of character and personality, and musical inventiveness. I really believe in musicianship and I think it's more interesting and more fun to make records with people who can actually play their instruments.

I've never been particularly concerned about what the current trends are. Like this band I've been working with, Grand Drive. They could have come out today, they could have come out 20 years ago or 30 years ago. There's a timeless quality that I like.

A lot of bands don't really get the opportunity to play anymore and that's tough. Bands are expected to be ready-made now, and there just aren't many of those kinds of bands out there. Look at The Beatles: How many years did they plug away until they found their sound learning their chops?

As a songwriter yourself and someone who likes to work with great songwriters, does it depress you to know that the musical climate for intelligent songwriters is so poor right now?

I can't worry about that. Also, it's not just intelligence that I'm looking for; it's passionate and *unusual* writing. I'm not interested in hearing people complain about social circumstances in the music and I'm not interested in hearing someone's juvenile take on relationships. So what does that leave? Plenty, actually. There's lots to say and lots of ways to say it, *and* interesting ways to present the ideas. That's what I'm trying to do with every record I work on. ∎

Blair Jackson is Mix's *senior editor.*

BY HEATHER JOHNSON

Which Came First—The Studio or the Band?

In Marcata's Case, They Arrive Hand-in-Hand

K eyboardist Walter Martin, drummer Matt Barrick and guitarist Paul Maroon hadn't even built a wall, much less manned a console, before building their project studio, the New York City–based Marcata Recording. But with the last nail hammered, they emerged not only knowing how to push a few faders around, but also with a new band, The Walkmen, who have received a fair amount of hype and critical praise for their 2001 debut, *Everyone Who Pretended to Like Me is Gone*, and the 2003 follow-up, *Bows and Arrows*.

The indie rock quintet's three core members founded Marcata as a way to keep playing music together after their previous band, Jonathan Fire*Eater, broke up. With the help of a few friends, they converted a vacant South Harlem warehouse, once the site of a Nash Rambler car factory, into a workable project studio.

"It was kind of a raw space," Barrick says of the barren but spacious interior, which doubles as the band's rehearsal studio. "There's a big spiral ramp that goes down a quarter of the building," adds Martin. "We're built on the ramp. It's not very steep, so it sort of works."

The control room resides on the upper deck, along with a small, 10x6-foot iso booth. The control room's large, double-slanted window looks down onto an approximately 800-square-foot live room, which sits about four feet below the control room. "You go down the hall and around the corner to get into the main room," Barrick says of the trapezoidal space, which contains a large platform in the middle of the room. "You walk in and you're on the deck. Then there's a walkway that goes down to the lower level."

"It's actually a two-level live room," explains house engineer Kevin McMahon, who joined Marcata six months ago. "You can put [musicians] on the upper platform for a tight room sound or put them down in the 'pit.' It's large enough that you can do really huge bands and have enough isolation."

This pit, as McMahon calls it, resides on the lowest level and normally houses a band's guitar amps. The dead-sounding space can be further isolated by "these horrible baffles," as Barrick calls them. "They're huge, plywood and weigh about 200 pounds. They're very scary."

When the band pulls an all-nighter at their multilevel studio (Marcata stays dark during business hours due to a few new neighbors), they often use room miking to bring Marcata's "big, echo-y" sound into their recordings. With the addition of McMahon, who added his own equipment to the Marcata pool, the band and their clients can choose from Telefunken U47 tubes and RCA 74 "junior" ribbon mics, and others from AKG, Audio-Technica, Shure and Sony. The control room contains a 24-channel MCI JH-416B console paired with a Neve 12-

Walter Martin (left) and Matt Barrick of The Walkmen record their own band and others on their 24-channel MCI console.

channel sidecar. Outboard gear includes a pair of UREI 1176 and dbx 160A compressors, a Tech 21 SansAmp, Roland Chorus Echo and an AKG BX-10 spring reverb.

Multitrack options include an Otari MTR-90II 24-track and a Studer A-80 ¼-inch 2-track machine. McMahon brought in his Pro Tools LE 5.1 workstation with Digi 001 interface and an Apogee Rosetta 800 8-channel 24-bit/96kHz converter, although the band has yet to use either due to their hectic touring schedule. It's unlikely, however, that the band will enter the digital realm anytime soon. "We did one song [on *Bows and Arrows*] on Pro Tools," says Barrick. "It seems to take the fun out of recording." Martin adds, "It's nice to see the tape that the sound is going onto, as opposed to putting it on the computer where you can tinker around forever. Sometimes it's nice to have fewer options."

The band prefers a natural, live sound for their own records and the acts that they bring into the studio, which to date has included New York–area acts such as the French Kicks, The Kills, the Natural History, Rana and others. On the studio's Website, www.marcata.net, a list of the group's influences (Joy Division, The Specials, Royal Trux) gives clients a sense of what to expect at Marcata.

"Marcata has a sound unto itself," McMahon says. "The [group] is very into distance-miking—using the room. The casualness that comes from the studio being owned by a band makes it a really great environment. We have a steady flow of people and it constantly blows me away. Everybody has a good time, and we get a lot of work done." ■

Heather Johnson is Mix's *editorial assistant.*

Chronicling *Riddick*

Simultaneous Sound Design for Film, Games, Anime

By Maureen Droney

S o it didn't get the box office hoped for following its debut in early June. But Universal can take solace in the fact that this is just the beginning. *The Chronicles of Riddick* is a franchise, a dark action/adventure that weaves subplot after intricate subplot into the alternate universes of feature film, anime, games and DVD. Sound design, of course, is crucial to all of its components. It's a fact: These days, in the brave new world of computer-generated imaging, sound design has to be nimble, quick and more creative than ever. And it has to cover multiple release formats.

"We got CG all the way up to the end, and music was still being scored until the last week. We were busy redesigning in the very last hours," says a weary Scott Gershin of Soundelux, who served as supervising sound editor and sound designer for the film, creative director and co-supervisor for *Dark Fury*, the anime, and sound design consultant for *Escape From Butcher Bay*, the game.

Riddick itself was a long time in the making, and Gershin was brought onboard unusually early in the process. "We usually get involved when post starts and have 16 to 20 weeks for a movie," he says, "but for *Riddick*, I ended up on the project for eight months. I'd worked on [director] David Twohy's last movie, and he invited me to read the script when they were just conceptualizing. They had visuals all over the walls—pictures, sketches, magazine clips—stuff audio people rarely get exposed to.

"Even though I'm a sound designer,"

PHOTO: JOSEPH LEDERER

Supervising sound editor Scott Gershin in his Soundelux home

PHOTO: MAUREEN DRONEY

Gershin notes, "it's always about the story, not just singular sounds. There are occasions when a sound may not be strong by itself, but used in the right context, it becomes perfect. Ultimately, what I'm trying to do is get a reaction from an audience. Plus, in *Riddick*'s genre, a lot of the audience are videogamers expecting an E-ticket ride, so we have to rock the room."

Gershin brought in "wingman" Peter Zinda early on for additional recording and weapons design. Sound designers Jon Title, Ann Scibelli and Bryan Bowen, along with several other editors, were also brought on to handle the frequent CG and editorial updates. Hugh Waddell came onboard to supervise ADR and dialog. Gershin explains, "I broke the show up into categories, with each designer and editor focused on different aspects of the film. Between temp deadlines and CG turnovers, we had numerous one- or two-day turnarounds. We needed to be flexible to support the schedule."

MUSIC, ANIMALS, MOUTHS

Basically a traditional action film with a sci-fi twist, *Riddick* is loaded with eerie atmospheres. Sound design took several directions; one

of them was musical. "I wanted the starships to have their own personalities rather than just being rumbles," Gershin relates. "I used guitars and Marshall amps with lots of processing. We also used vintage synths and hip hop/beatbox-type elements. And we definitely explored the sub-frequencies; on the dubbing stage, the joke was that the sound was sometimes 1.5 rather than 5.1. I also used choirs and dissonant chords in different ways to create a vibe, especially for the [evil] Necromonger characters.

"Originally, we'd used a lot of low growling sounds for the Necro ships," he continues. "But when we heard the music, the design didn't cut through, so we consulted with composer Graeme Revell and music editor Josh Winget to design each scene with both music and [effects] in mind. I like to do what I call 'audio focusing': In scenes not driven by dialog, the goal is, 'What do we want the audience to focus on at any moment in time?' Just because you see a big ship in front of you doesn't mean you need to hear it all the time; something else might be more interesting. A strange thing happens once a steady sound is introduced. You can slowly mix it away so other sounds can be heard and the audience never notices that it's gone. It's like weaving. [Dialog mixer]

Around the World in 80 Days

Production Sound in Thailand and Germany

By Blair Jackson

Maybe it was a gimmick, maybe it was good business sense, but originally the shoot for director Frank Coraci's new version of *Around the World in 80 Days*—with Jackie Chan, of all people, tumbling and kicking his way through exotic ports of call as the irrepressible Passepartout—was scheduled to last—80 days. "I think in the end, it ended up being around 90," says the film's England-based production sound mixer, Ian Voigt, with a chuckle. "But it all went very smoothly. From our standpoint, with the dialog, we were very lucky and quite successful, considering."

Considering…that the film, again based on Jules Verne's classic novel, is set in the 19th century and was filmed entirely in Thailand and Germany—one a modern, noisy, tropical environment, and the other a modern, noisy urban environment. "Bangkok is incredibly busy," Voigt says by phone from Morocco, where he's working on a film called *The Walk*, "and, obviously, you can't have cars and all on your audio track, but we worked around it somehow. There were times when we were shooting in the heart of the city and we got away with murder [sound-wise]. We even worked through a blackout."

Voigt, who has done production sound work on such films as *Shanghai Knights* (another Jackie Chan vehicle), *Behind Enemy Lines*, *The Mummy Returns*, *Spice World* and the just-completed remake of *The Flight of the Phoenix*, reveals that various locales in Thailand doubled for India and China, while parts of Berlin were transformed into Paris and Versailles. With its intense heat and humidity, Thailand proved to be the more difficult location. "You walk off the plane and you're instantly drenched in sweat," Voigt says. "You put extra silica packs in your gear to keep it all dry, and then it's just a matter of adjusting. We shot all the train scenes in Thailand using a train on a gimbal [augmented by blue-screen exteriors], and I swear the temperature inside with the

lights and everything would get up to 120, 130 degrees."

Voigt's rig for location sound, which he packs into a large flight case, has evolved through the years to include a blend of proven recent technologies and a few time-tested old favorites. He's eschewed the Nagra D ("a beautiful machine, but a little cumbersome," he says) for a 4-channel Zaxcom Deva II digital recorder/mixer, "which has been really great so far. It's given me no problems at all and it has an amazing storage capacity: I can have a month's worth of work stored in it. Also, it goes directly into the Avid so it's faster on [the post] end." He also carries an Audio Developments 146 8-channel mixer, an Audio Ltd. quad rack with four diversity receivers to handle his RF mic needs

Ian Voigt, right, with boom operator Simon Firsht

and two additional Audio Ltd. 2020 transmitters, a TFT (Thin Film Transistor) monitor, a 4.7GB Panasonic DVD-RAM drive (for downloading rushes sent to editorial and post), a Black Box Monster 40 amp-hour 12-volt cell and a Nagra IV-S analog backup. Voigt and his boom operator of several years, Simon Firsht, use a range of different mics, including Sennheiser MKH-60 short shotguns (used for most outdoor work), Sennheiser 816s and Neumann KMR 82 long shotguns.

"Besides doing all the dialog," Voigt says. "I also did some effects tracks, especially in Thailand, where there were all sorts of great birds and interesting sounds once you got out of the city a bit. Actually, there was a time when we were on location and there was this incredibly loud bird that

was all over the scene we were shooting. People were throwing rocks at it to try to get it to fly away; nothing worked. In the end, we just let it go. So the bird is on there; it's fine," he says with a laugh.

The film also required a considerable amount of blue-screen work on sets, but because those shots usually also employed wind machines, most of the live production tracks from those sessions were not usable. "Still," Voigt notes, "we would usually do wild tracks just for the editors to have some kind of guide track to work with."

In the end, Voigt says, "All the things that could've gone wrong—with the weather, with equipment, whatever—didn't for a change." On what turned out to be a relatively carefree show, Voigt did learn at least one new audio factoid, however: "There was this one exterior night shot where Jackie [Chan], Steve Coogan [who plays Phileas Fogg] and the girl [Cécile De France, who plays Monique La Roche] are clinging to the side of an elephant and having a conversation. What we discovered is that RF doesn't travel *through* an elephant. We were on the wrong side of the elephant. Now we know." Production mixers, take note. ■

Riddick

Chris Jenkins, [sound effects mixer] Frankie Montaño and [music mixer] Rick Kline did an amazing job."

The editorial team spent four months building a library, which Gershin says, "in the end turned out to be a lifesaver." Several days were spent at the Sherman Oaks, Calif., studio of Rob Arbittier, known for his vintage and modern synthesizer collection.

Other days were spent creating effects with guitars, a Vocoder, Native Instruments' Vokator and plain old mouth noises.

"I'm the voice of Flubber, among other characters and inanimate objects in various movies," Gershin says with a laugh. "There are things I can do with my voice that I can't do with anything else. For a lot of the ships, I needed screaming elements and low-end sounds. I didn't want to do *Star Wars*–style animals, so I used my voice."

The Riddick *audio crew on the Universal Hitchcock stage, from left: music mixer Rick Kline, lead mixer Chris Jenkins, director David Twohy, ADR supervisor Hugh Waddell, re-recording mixer Frankie Montaño and supervising sound editor Scott Gershin*

World Radio History

A pyrotechnic convention in Lake Havasu, Ariz., yielded fireworks fodder. Animals—from leopards to Bengal tigers and wolves—were recorded during feeding time at Frazier Park, located just north of L.A. Gershin also prevailed upon a pilot neighbor for access to a Lear jet hanger, where the crew recorded interiors, alarms and hydraulic systems.

THE STUDIO

The bulk of the sound editorial was done at Soundelux's Hollywood facility. Gershin's studio, which he likens to a "mini dubbing stage," contains some unusual centerpieces: a Roland Octapad, a Light Beam and an Atari Hotz MIDI Translator, each of which he plays like an instrument. "Jimmy Hotz

On the Hitchcock Stage

Riddick was mixed at Universal's Hitchcock Stage on a Harrison MPC console. Sound editorial brought in seven 32-output Pro Tools| HD systems for unit playback and a system each for Gershin, Zenda and ADR supervisor Hugh Waddell. Music editor Josh Winget also had a 32-output HD system. Universal and Soundelux created a networking system for the stage that also tied into Soundelux's main network for access to the rest of the editing crew. A KVM system allowed any of the crew to control or see any of the workstations. The screens at times became virtual cue sheets.

only made 25 of the Translators," says Gershin. "It has pads with velocity-sensitive control. I can actually play the EQ and outboard gear with MIDI."

Gershin's Pro Tools system currently runs on Macintosh OS 9. To preserve favorite plug-ins and VST instruments before upgrading to Pro Tools|HD, there's also a "virtual outboard rack," a PC that interfaces via a Sek'd AES/EBU card using Nuendo software to communicate with Pro Tools.

"I recently got rid of my mixer," he explains. "All my outboard gear goes into Pro Tools and is controlled by a Control|24. I have one 888|24, which goes straight to an [Otari] PicMix and then to the speakers. Three 888s route 24 channels of I/O dedicated to outboard gear, which includes a TC Electronic 6000; a Lexicon 480XL, PCM 80 and 90; an Eventide Orville; and a Waves L2."

Synths abound: an Oberheim Expander, a Jupiter 6, a Korg Triton, a Pro-1, a DX7, Kurzweil and E-mu samplers, a Virus, a "ton" of Roland modules and a Wavestation. Mic pre's are ATI and Millennia STT-1 with a

Telefunken tube. Other favorite processing includes TC Electronic FireWorx, Waves IR reverb, a Mutator Filter, a Boss VT-1, a Dolby Model 740 Spectral Processor, "everything from Waves—love their stuff, Seratos PNT, "everything from Native Instruments, including Vokator," Moog Modular V and more.

THE GAME

Escape From Butcher Bay—the galaxy's most deadly prison—was developed in Sweden by Starbreeze Studios. Gershin and Soundelux were brought in to work with Starbreeze's team to enhance the game audio and to sonically tie together the opening and closing flashback scenes that reference *The Chronicles of Riddick*, as well as create a long list of sound design effects for use in game play.

"Part of what's intriguing about this franchise," notes Gershin, "is that it's different stories in the same universe. For the game, David Twohy, Vin Diesel's Tigon Studios and Vivendi Universal wanted to preserve a sonic landscape with as much *Riddick* flair as possible. But stylistically, it's different. There's also a culture, of course, to video games. Sometimes, gaming people consider film sound designers to be too 'Hollywood.' For *Butcher Bay*, we thought a lot of what Starbreeze had was great. We suggested sounds that we thought would bring something new to the game and also keep to the style of the movie."

Soundelux's part in the game took approximately three months, according to lead sound designer Bryan Celano. "Because Riddick's weapons were similar in the game and the movie," he notes, "we ended up doing a lot of the game weapons using sounds recorded for the film."

With Xbox and Playstation available in 5.1, game fidelity can be as good as a movie or home DVD. "Because game scenes are rendered on the fly without knowing when or where the player is going to go," points out Celano, "the sound has to be rendered in real time, too. It helps to know which elements in the room are going to be moving around and which are just going to be ambiences or backgrounds.

"Sound effects and music for interactive projects are usually given a RAM maximum," he continues. "You create the sounds and in the end, you look at your pile of sounds; what's low priority needs to get squished down as small as possible. We use spreadsheets to total up the accumulated

RAM; if we're over, we have to cut back on something. Recent game development technology allows multitrack streaming audio, which opens up the limits quite a bit."

THE ANIME

Dark Fury, by noted animator Peter Chung (*The Animatrix: Matriculated*, MTV's *Aeon Flux*), presents a new vision of the *Riddick* universe bridging *Pitch Black* and *The Chronicles of Riddick*, with Riddick battling bounty hunters and vicious creatures in the slaughter cells of a massive starship.

For *Dark Fury*, sound was created from scratch, with Soundelux's Glynna Grimala serving as sound supervisor. "Peter [Chung] came in at the initial meeting knowing exactly what he wanted," says Grimala, "but he was also very open to new ideas.

"We had a lot of conceptual meetings and then, after we saw a rough cut, I started pulling a library together for the designers, creating templates within Pro Tools so that it flowed easily," she says. "I established a system and then worked with Scott to get him material to comment on. I supervised three other designers, and also cut dialog, supervised Foley and edited. There was also, of course, a lot of ADR that required cleanup and placement."

Dark Fury's plot provides insight and the characters' back story, but it's also self-contained. Weapons were familiar; for the fight scenes, sound design pulled materials from the film. But much of the action takes place on a spacecraft that doesn't exist anywhere except in the anime.

Bryan Celano, lead sound designer for Escape from Butcher Bay

"The ship is rich, high-tech and filled with trapped frozen people," explains Grimala. "It gave us a chance to do background ambiences within the different rooms and incorporate the concept of tortured souls with whispering and breathing—almost as if the ship is alive."

The schedule for the 35-minute anime was tight: approximately four weeks for design with two days for the final mix. "What was different about the anime from

COMPUTER,
MEET CONSOLE.

INTRODUCING THE DUAL-TOUCHSCREEN, 24-BIT/192kHz, FIREWIRE-STREAMING, VST-COMPATIBLE, PRO TOOLS-NUENDO-LOGIC-CONTROLLING, MASSIVELY EXPANDABLE DXB.

Seamless computer integration. Forward-looking architecture. Uncompromising sound. And dramatically faster production. These are the basic ideas behind Mackie's breakthrough dXb.200 and dXb.400 High-Definition Production Consoles.

Designed in a joint partnership between Mackie and SaneWave Engineering, the award-winning dXb is not only the most powerful and versatile digital console in its class. It's the first digital console to deliver features previously found at more than ten times its price.

Everything about the dXb interface—from its dual 15" touchscreens to its 100mm Penny + Giles™ motorized touchfaders—was designed for the precise response and intuitive operation commonly associated with analog

Winner, Pro Audio Reivew
excellence award, AES 2003.

buttons and switches, not "virtual" ones. So you can quickly make the dXb the centerpiece of your existing studio without re-learning what you already know.

Considering features like 24-bit/192kHz operation, streaming audio via FireWire I/O, the ability to route any input to any output, VST plug-in compatibility, full Surround capabilities, a giant rear-panel card cage, and integrated control of Pro Tools™, Logic™, Nuendo™ and more, the dXb.200 and dXb.400 consoles are ready for action. And considering their starting price thousands of dollars less than any comparable console in the world, you will be too.

Want to learn more? Meet the future at www.mackie.com.

800.258.6883 (Toll free within U.S.)
425.487.4333 (Outside U.S.)
info@mackie.com

MACKIE.
www.mackie.com

the film or the game," comments Grimala, "was that we didn't have production [sound] to pull from. We really didn't have anything. We did a ton of Foley because you need movement: footsteps, weaponry, things like that. And, luckily, we have the extensive Soundelux library, as well as access to the library created for *Riddick*. We also did a lot of our own vocals; for example, one of our designers used my voice combined with his as a base to build on for one of the creatures."

The two-day mix, by Soundelux's Tom Ozanich with the assistance of Tony Lamberti and Aaron Levy, was done at Todd-AO Burbank, a member of the Ascent Media family, as is Soundelux. Fortunately, there were three days of predubbing done by Ozanich at Soundelux just prior to the mix.

"If we hadn't had that ability to work closely together for those predub days," says Grimala, "I don't know if that two-day mix would have been possible."

Soundelux's sound supervisor Glynna Grimala (left) and Tom Ozanich worked on the anime.

THOSE ALL-IMPORTANT RATINGS

Pitch Black, the prequel to *Chronicles* released in 2000, had been saddled with an R rating. This time around, PG-13 was crucial to Universal. "At the very end, we found out we were going to get an R," says Gershin. Maybe it was *Riddick*'s element of realism or its dark nature. We were right on the line, and there was some thought that the audio might be enhancing the violence. So for some key scenes, in addition to strategic picture editing, we had to take out or mix down bone crunches, gooshes, sword slices, big punches and machine guns.

"It was extremely difficult, in some cases, to make the changes. In one scene we called 'One step, one kill,' Riddick has to slash his way to the ship hangar. There are gravity guns going, slashing and fighting; it was a big scene. But at the end of the day, we had to mellow it. We got to the point where putting in alternate sounds that were too wimpy might not have had the right impact, so we decided to let the music carry the fight. We ghosted some fight design with animals, Koto drums, weird whooshes and little bits of vocals; it became conceptual."

THE BIG PICTURE

"With *Riddick*," concludes Gershin, "we connected the lines between mediums. We tried to develop a symbiotic thread, while stylistically going with the different media as their own entities. Everyone involved was very proud of, and focused on, their medium: David Twohy, the director of the film; Peter Wanat, producer of the video game; and Peter Chung, the creator and director of the anime. They all have their own ideas, and they're all wary of the big arm of Hollywood. For me, it is important that each creative producer feels connected, comfortable and unique."

MIX ONLINE EXTRAS

Live mix

Franz Ferdinand

Photos and Text by Steve Jennings

Glasgow, Scotland–based Franz Ferdinand's show reminds one of a little bit of '60s pop infused with '80s new wave, but with a slightly modern feel. *Mix* spoke with front-of-house engineer Mike Parker about the tour.

"The group [bassist Bob Hardy, guitarist Nick Mc-Carthy, drummer Paul Thomas and vocalist/guitarist Alex Kapranos] has loads of dates in Europe and the UK, two decent-sized U.S. tours and two U.S. promo trips. Next month is Australia, New Zealand and Japan. We are carrying all the microphones and two sets of in-ear monitors. We have a Sennheiser endorsement: Sennheiser 935s for everyone except Alex [pictured], who uses a Sennheiser 840 because he chipped a bit off his tooth in the middle of our last tour, which has made his voice more sibilant. The 840 has slightly less presence than the 935, which helps."

Parker jokingly notes that his console "changes like audio roulette." Stashed in his FOH rack are eight dbx 160A compressors for bass and vocals; four Drawmer DS501 power gates on both kick mics, bottom snare and floor tom; two Lexicon PCM70 for vocal and kit reverbs; a TC Electronic D2 snare delay for "Come on Home"; a Yamaha SPX-990 special reverb for "Tell Her Tonight" and "This Fire"; and one BSS 901 multiband compressor used as a de-esser for Kapranos' vocal, which is in-line with one of the dbx 160As.

Front-of-house engineer Mike Parker

"On monitors is engineer Tilde Bruynooghe, who is from Amsterdam. We met her at the Paradiso a while ago and she's great."

FixIt

Russell Giroux

Russell Giroux is currently tour manager/front-of-house engineer for Default, a band that's been touring almost nonstop for the past three years and is currently supporting their latest release, Elocation.

I love using large-diaphragm condenser mics on guitar cabinets to get that crisp, but thick rock guitar sound. The strangest things can happen during rock shows: losing phantom power to cables suddenly "breaking" or coming out, guitar amps blowing up or even mics going down in the middle of shows. I always have a DI feed from a guitar amp simulator at FOH. I can quickly bring up the simulator channel and the show can continue. If the problem is caused by an amp, this method is also a benefit at monitor world, as the band will only have a momentary loss of the instrument in their mix and onstage instead of waiting for the problem to be combated.

News

McGraw Hall's (Seattle Center) $127 million renovation includes a Yamaha PM-1D digital console with two 96-in CS1D control surfaces and a 48-in/32-out mix engine powered by a Crown IQ network

American Idol's sound system, run by engineer **Andrew "Fletch" Fletcher**, incorporated a **Soundcraft MH4** console for the live mix. "We had left and right P.A. speakers, three frontfill zones and subs for the 560-seat room, three monitor zones onstage for the performers, mix-minus monitor sends for the host and judges, backup broadcast feeds and a bunch of other sends here and there," Fletcher says…Racetrack **Churchill Downs'** (Louisville, KY) current renovation is under the guidance of acoustical and audio consultant **Kevin Smith**, who is treating the 200-zone facility with 155 QSC amps, while 42 **QSC Basis 922az** Ethernet-based monitoring systems control amps and loudspeakers…**Fishman's Aura Acoustic Imaging Blender** is in use by guitarist **Jacques Stotzem**, Dave Letterman's *Late Show* orchestra bassist **Will Lee** and multi-instrumentalist **Harvey Reid**…**Phil Collins'** First Final Farewell tour began in Europe this past June and was outfitted with **L-Acoustics** amp and loudspeaker systems, including the newly launched 115XT HiQ stage monitor. The loudspeaker rig comprises 32 V-DOSC, 24 dV-DOSC, 28 SB218, six dV-Sub, eight 112XT and eight 115XT HiQ cabinets, supplied by Hyperson (Switzerland) and powered by L-Acoustics LA48A and LA24A amps. The system also includes 15 main L/R V-DOSC arrays with dV-DOSC downfill enclosures (three per side), accompanied by flown SB218 subwoofer arrays (eight per side), with coverage offstage via two flown LL/RR arrays of dV-DOSC at nine to 12 per side.

World Radio History

On the Road

Jerry Lloyd

Roots bluegrass artist Ricky Skaggs (right) has spent recent years collecting critical accolades and turning out stellar works such as *Live at the Charleston Music Hall*, a disc captured live with his band Kentucky Thunder. Known for their hot licks and high-energy interplay, Skaggs and company count on monitor engineer Jerry Lloyd.

Is there a common thread among what everyone is looking for in their mix?
Sure—"More of me." Ricky likes more of what I refer to as a "listening mix." That is, you could actually listen to it and enjoy it. He pretty much has everything in there.

Bluegrass musicians have always been notorious for feeding back and having poor equipment. You've done quite a bit to reverse that tradition.
When we started playing bigger venues and using larger house systems, we had to turn it up onstage. To avoid problems, we switched to in-ears with Shure PSM systems. Today, we're using mostly PSM 700s. Now we can get as loud as a rock show, yet retain our clarity. All I have to do is turn it on and we get the same consistency every night.

How do you mike Ricky and the band?
Ricky's using an SM86 on vocals and a large-diaphragm KSM44 on his mandolin. Beta 87As are for backing vocals, banjo and fiddle. Upright bass is mostly DI, but we will use a KSM32.

What's your console?
A Roland VM7200. They don't make this desk anymore, unfortunately. For us, it has been totally dependable. We've had it since we went to in-ear monitors three years ago.

Is there life after monitors?
You mean like when I'm *supposed* to be off? We had a slow start touring this year with Ricky spending time in the studio, but now it's getting pretty busy. I love wood working. My dad was a carpenter, so I grew up around it.

Now Playing: Summer Festival Update

Coachella Valley Music & Arts Festival
Sound Companies: Rat Sound Systems (Oxnard, Calif.), U.S. Audio and Lighting (North Hollywood)
Main Stage FOH Engineer/Consoles: Brian Murray/two Midas H3000s
Main Stage Monitor Engineers/Consoles: Andy Greenberg, Ace Acevedeo, Ryan Trefethen/two Midas Heritage 3000s
Main Stage P.A.: 2x main clusters, each with 15 L-Acoustics V-DOSC cabinets, three dV-DOSC; 2x side clusters, each with six L-Acoustics V-DOSC, three dV-DOSC; 48 Rat Sound Dual 18-inch subs, eight L-Acoustics ARC; Crown MA5000; Lab Gruppen FP6400; two clusters each (delay) six dV-DOSC
Main Stage Monitors: 20 Rat MicroWedge 12 monitors
Main Stage Outboard Gear: Yamaha SPX-990, Lexicon PCM90, TC Electronics D2, Eventide H3000, Summit Audio DCL200, dbx 160A, Drawmer DS201, BSS FCS 960, DriveRack with XTA DP226 (L-Acoustics presets) and Midas XL88
Main Stage Microphones: Shure Beta 91, Beta 98, SM81, Beta 57 (drums), Beta 58 (vocals); Countryman DIs

Merlefest Main Stage
Sound Company: SE Systems (Greensboro, N.C.)
FOH Engineers/Console: Buck Parker, Kent Lieske/Midas Heritage 2000
Monitor Engineer/Console: Dwight Grubbs/Soundcraft SM20
P.A./Amps: 24 JBL VerTec 4889, eight HLA 4897 (subs), two VerTec 4887 (frontfill), six 4894, six 4892 (delays)/QSC Powerlight 9.0s, 6.0s
Monitors: Proprietary JBL loaded wedges, 4894 (sidefill)
Outboard Gear: dbx 162SL, 160X, 903; Klark-Teknik DN9340, DN9344, DN3600, DN514; BSS FDS-366; Lexicon 960L, PCM90; Yamaha SPX-900, SPX-990, Rev-5; TC Electronic TC 229
Microphones: Shure Beta 57A, KMS32, SM81, SM98, SM58, Beta 87, SM91; Beyer M88, U Series Wireless; BSS AR-133
Other Audio Crew: Todd Dupree (stage A2), Tim Reavis (LD)

MG-Sound Brings Surround to Vienna Gig

Studio owner Martin Böhm of Vienna, Austria–based MG-Sound was music director for the Wiener Festwochen (Festival Weeks) opening ceremonies in front of Vienna's City Hall.

MG-Sound produced the pre-recordings, which were presented live in 7.1. Front-of-house engineer/audio supervisor Alex Schlösser, owner of AS Audio in Köln, Germany, provided the gear (InnovaSon Sy80 digital desk, Meyer M3D speaker system). "We had four Meyer stacks in front aimed for the audience up to 30 meters away and an array of satellite speakers to create the 7.1 experience," says Böhm. "The rear surround speakers were positioned across a boulevard on which railway

Alex Schlösser (left) and Martin Böhm

trams were running throughout the show."

"We used a standard in-ear system with a large antenna and lots of power to transmit the signal for the rear surrounds," Schlösser adds. Wireless mics were from MiPro, using its Automated Channel Targeting system for a total of 24 channels.

Wouldn't you like an SSL in *your* studio?

VELVET REVOLVER

Photos & Text by Steve Jennings

Velvet Revolver's (comprising former members of some of hard rock's revered bands, Stone Temple Pilots and Guns N' Roses) theater jaunt is one of the most anticipated tours this summer. Ex-Stone Temple Pilots vocalist Scott Weiland kept the audience captive with his snake-like contortions, and was in top form vocally, while ex-GNR rockers Slash (guitar), Duff McKagen (bass), Matt Sorum (drums) and guitarist Dave Kushner had the place rockin'. Mix caught the show at The Warfield (San Francisco) in early June.

Front-of-house engineer Orris Henry
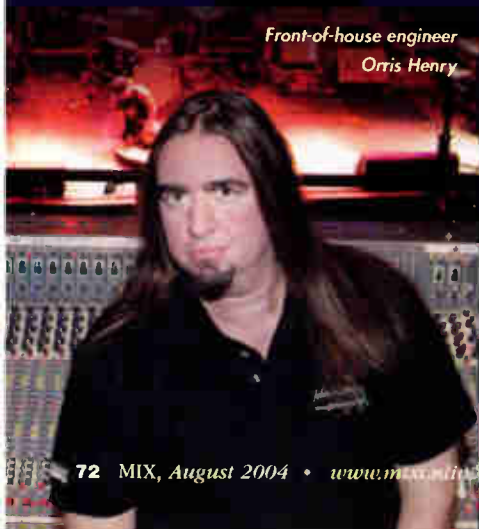
Front-of-house engineer Orris Henry is using a Midas XL4 on this tour because of its preamps and nice, warm sound, as well as the board's logical layout. "You can watch the meter bridge as you're looking at the stage to detect any problems and meter your gain structure without taking your eyes off the band.

"We run about 30 inputs—a lot for a four-piece band," Henry continued. "A lot of the instruments are double-miked: I like to have the different tonal qualities of the different mics to work with. For instance, the kick has a Beta 91 and a Beta 52. The 91 gives the attack and the 52 gives the boom. The snare gets an SM57 on the top and an [Audio-Technica] 4050 on the bottom. The large-diaphragm 4050 picks up all the good rattle bits and delivers some extra bottom that most people roll off. I've got [AKG] 535s on the ride and hi-hat because they sound so natural. The toms get an older prototype mic that Beyer gave to drummer Matt [Sorum] when he was with The Cult. The overheads are 414s: They seem to sound the best to my ears."

For bass, Henry uses a DI after the wireless for the clean tone, a DI after the bass amp to pick up the effects and a Sennheiser 421 in the Gallien

Krueger speakers to pick up that "signature" Duff McKagen sound. "Duff also sings on a Beta 58. On Dave [Kushner's] guitar, we liked the SM57 and [Audio-Technica] 4047 so much we tried it on Slash's [lead guitarist] dirty sound; it was a perfect combo. Slash has a distinct tone and the 57 gives the bite and the 4047 gives the balls. Since this is a guitar band, you better have that covered. Slash also has a stereo clean sound that we mike with two 57s. The one unique sound we have is that Slash has a piezo pickup in one of his Les Pauls that gives a good high-gain, clean tone."

Inside Henry's rack are a TC Electronic D2 delay for vocal effects and an Eventide H3000 on the Voice-Doubler setting, which Henry notes has become a part of Weiland's signature sound. Henry also uses an Eventide Eclipse for vocal distortion programs, a TC Electronic 5000 for vocal reverb and his old favorite Lexicon 224XL on drums. As for inserts, Henry relies on a BSS Audio 901 in-line with a Distressor for Weiland's vocal, as well as Summit 200s on McKagen and Sorum's vocals and on the bass DI and bass mic. On drums, Henry uses Drawmer gates and four Drawmer 241 comps for kick and snare.

Vocalist Scott Weiland uses Shure Beta 58A capsules on Shure RF receivers as he is always moving around— hence, no wires.

Lead guitarist Slash

Bassist Duff McKagen

Guitarist Dave Kushner

According to Doug Kimball, who is manning a 48-channel AT Paragon console at the monitor position, he has very little in his rack, as the Paragon has gates and comps on each channel.

Kimball chose to put the band on Ultimate Ears in-ears after checking other brands "and no one comes close to them in consistency. I have Shure 600 ear transmitters for Scott and Dave. At show time, I mix solely for Scott with a full studio-type mix and effects left and right: Eventide 3500 for vocal doubling, SPX-990 for distortion and TC M5000 for delays. My third—Brian Ratchko—takes care of the rest of the band if there is a need. Slash, Duff and Matt are on wedges with two single-18s for side-fill 'oomph.' All in all, the band is very easy on the monitor dude."

Monitor engineer Doug Kimball
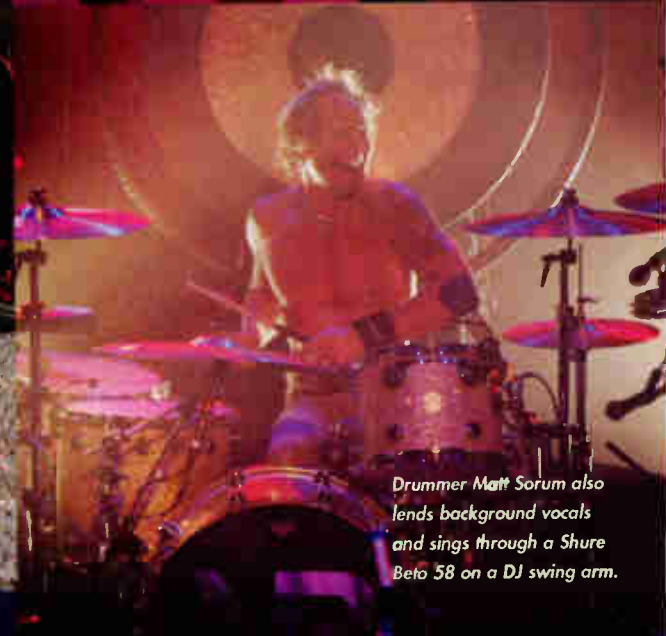
Drummer Matt Sorum also lends background vocals and sings through a Shure Beta 58 on a DJ swing arm.

Madonna has re-invented her image numerous times during the course of one of pop's longest and most successful careers, including recently changing her name to Esther, reflecting her following of the Jewish discipline Kabbalah. Since her early "Boy Toy"–belted R&B/dance days to her recent electronica-influenced *American Life* album with its faux Communist art cover, her music and look have continuously morphed, keeping fans guessing as she incorporates new musical and fashion trends. One of the few constants, however, is Madonna's ability to take her audience with her as she dares each new transformation.

No surprise, then, that Madonna's 56-date aptly named Re-Invention tour, her first major tour in three years, which began this past May, sold out almost as soon as tickets went on the market. Playing in large-scale arena in the 12k to 16k range across Western Europe and North America (including Slane Castle in Ireland and a stadium in Holland), Madonna's show features hits from throughout her career, a move sure to please fans who missed her mostly absent back catalog on last year's six-month Drowned World tour. *Mix* caught up with the former Material Girl during her six-night run at Madison Square Garden (New York City) in late June.

Madonna's Re-Invention Tour

By Gaby Alter

PHOTO STEVE JENNINGS

The Madonna principle sound crew, from left: monitor engineers Sean Spuehler and Ian Newton, front-of-house engineer Kevin Pruce and Gene Phillips, who deals with mics and RF

WELCOME TO FOH

Kevin Pruce, Björk's touring engineer since her days with The Sugarcubes in the late '80s, is helming front of house for Madonna this time around. "I think it's fair to say

Madonna and Björk offer different challenges," Pruce says. "So whilst the basics of mixing are the same, the Madonna tour is a big production with many other aspects to consider—dancers, major video and staging moves [including a moving catwalk], et cetera, along with a band and sequencing—whereas Björk uses live strings [a 56-piece orchestra and 16-person choir, as on her Vespertine Tour in 2001] and acoustic instruments such as harps alongside electronics and sequencing."

The Re-Invention tour employs a Clair Bros. i4 and i4B line array system with Prism floor subs. The main system is a standard Clair Bros. hang of 14 i4s and 12 i4Bs. The side system has eight i4s and six i4Bs. There are eight Prism subs in front of the stage and eight P2 frontfills. Two AM12 wedges cover the "mosh pits" [a dance pit located near the side of the stage]. System control, EQ and delay are from 10 Clair/Lake iO units. Madonna is a Clair Bros. account and for Pruce, who usually uses an L-Acoustics V-DOSC system, it was his first time out with the i4 system. "While they are both line arrays, each system has its own distinct char-

acteristics to master, which has been very interesting. I'm pleased with the results from the i4." Amps are models from Crest, QSC and Carver.

Pruce observes of the tour venues that "each room obviously sounds different and the space tends to be different. [Madison Square Garden] is more of a bowl shape than a regular arena. The scoreboard [for basketball games] is a bit of a pain here because it doesn't go out. It hangs quite low and tends to be a bit of a nuisance. Sometimes they can move them and fly them out; sometimes, they're high enough that it's not a problem, but this one seems to sit quite low. We put a drape across the front of it to stop any reflections back to the stage."

The Yamaha PM-1D FOH board takes 80 inputs from the stage. "Obviously, the digital recall is always an advantage," Pruce says, "and with a show like this that's heavily programmed—lots of cues and things going on—having it digital means you can recall it straight-away. I've used the Yamaha PM-1D extensively over the last few years and the backup from Yamaha is superb worldwide." He uses little in the way of outboard effects, relying instead on the PM-1D's internal effects except on vocals, which are treated with a Lexicon 480L. Madonna's and two backing vocals go through BSS Audio 901 dynamic compressors and Tube-Tech CL-2A compressors, and the guitars are treated with BBE Sonic Maximizers. A Tube-Tech SMC 2B is used for overall compression on the system.

MICS FOR EVERYONE

Miking the band is fairly simple, with almost all instruments (bass, two keyboard setups, acoustic guitars, electronic drums and sequencing) being DI'd. Acoustic drums and electric guitars are the exceptions, though the drum kit is actually a hybrid of electronic and acoustic. "There's an acoustic snare that's miked top and bottom, an acoustic hi-hat, two cym-

On the Rider...

Handling monitor duties on the current Madonna tour are Ian Newton and Sean Spuehler. *Mix* was able to snag a copy of their monitor tech rider. Here's what they are carrying:

Consoles: two Yamaha PM-1Ds, 80 inputs from the stage

Outboard Effects: Eventide Eclipse, H3000; Emagic Logic; Lexicon 480L; Electrix filter factory; internal PM-1D

Processing: Focusrite ISA 110 and Distressor EL8

In-Ear Systems: Ultimate Ears UE10 through Sennheiser G2 transmitters

Flown Sidefills: 2x R4 and 1x R4 floor sub

Drum and Keyboard Subs: 3x ML18s

Mics: Sennheiser SKM3072-U (vocals), MK105 (headsets); Audio-Technica AT4050s; Shure Beta 57A (snares), 451s (hi-hats and rides), Beta 98s (bagpipes and military snares); AKG 414s (overheads); ddrum triggers (kick snare and toms, plus various noises and effects); guitars, bass, keyboards and DJ decks are DI'd

Pop Icon Revisits a Career of Makeovers on the Road

PHOTO STEVE JENNINGS

Surround
In The Living Room

A "Tree" Prospers in Manhattan

By David Weiss

etting great sound in your living room usually isn't too tough: Get a good stereo, plug in some speakers of choice and let the jams begin. But when your living room is The Living Room (www.livingroomny.com), one of New York City's top acoustic music venues, and getting great sound means recording in Direct Stream Digital (DSD) and 5.1, things get a little more complicated.

The recently opened, 125-person–capacity room on Ludlow Street in Manhattan's Lower East Side is the club's second home, an expansion that gives its sharp-eared founder space to make the most of the niche that he's carved out. "This is a place where people come and listen," says Steve Rosenthal, who co-owns the club with Jennifer Gilson. "The Living Room really represents where singer/songwriters and jazz artists can play to a quiet audience. There are café-style tables, and it's not a stand-up rock club: You don't have to wear earplugs."

With The Living Room already known as a live proving-ground for Norah Jones and other artists, Rosenthal knew that he could build on his considerable engineering experience as the owner of New York City–based recording studio The Magic Shop and make the club a premier live recording venue for acoustic music. For Rosenthal, the first step toward accomplishing that was committing to the heightened experience of Sony and Philips' proprietary 1-bit DSD format, which is channeled to consumers as Super Audio CD (SACD). "I feel like SACD is the first digital format that can compete with analog technology," Rosenthal says. "I believe if we're going to get people interested in music again, we have to get

them into *listening* to music again."

Benefiting from close contact with Sony SACD director David Kawakami, Rosenthal and engineer Joe Warda had to design a club that could accommodate crowds, pristine DSD techniques and 5.1 recording—simultaneously. "I wanted to create a larger-sized listening space where we could retain the charm and ambience of the smaller Living Room. That's difficult when you start with a space that's four times the size," observes Rosenthal. "We went for what we called a 'quieter' room: We had to do a lot of sound absorption, taking the basic studio design concept of standing sound baffles and wall

The Living Room engineer Joe Warda (left) and co-owner Steve Rosenthal at the front-of-house position

baffles and making them work in a live sound application."

Knowing that they would also be taking the unusual step of installing ATC SCM150 studio monitors for the main room's P.A. system, Rosenthal and Warda tuned and tested the room extensively. "Reverb time is now down to 0.7 seconds,"

Getting Better All The Time.
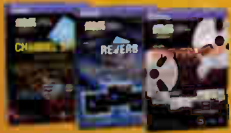
Expandability and upgradability are keys to maintaining Yamaha's market-leading digital mixer status. Newly available O2R96 and O1V96 Version 2 software adds significant enhancements to the already impressive feature sets of both, yet the O1V96 software is free and V2 for O2R96 costs only $300 MSRP. One Version 2 benefit enables both consoles to load optional, leading-edge effect plug-ins (at left) into their existing internal libraries. Another provides compatibility with our MY16-mLAN network card coming this winter. And a third allows expanded control of leading computer recording software. For a complete description of all Version 2 functionality, visit us at www.yamaha.com/proaudio. So, if you're anxious that tomorrow's technology will obsolete what you buy today, think Yamaha.

⊛ YAMAHA
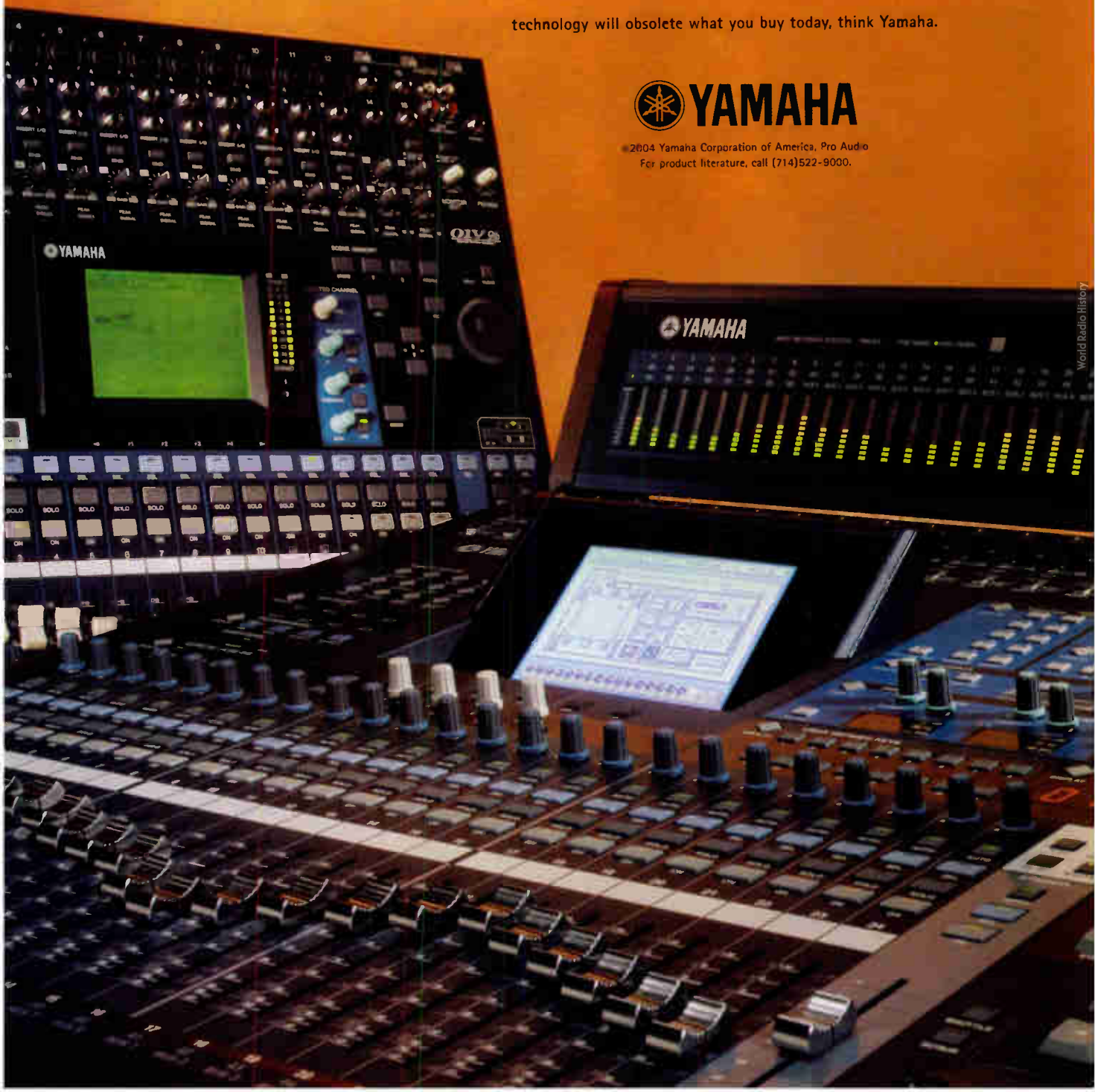
Warda says. "That was key, since the ATC engineer stressed that the ATCs operate much better if the reverb time is below a second. When we started, the room was very live, but we didn't want to go too dead because 125 people absorb sound."

The next step was setting up a Decca Tree with three Shure KSM32 single-diaphragm cardioid condenser microphones facing the stage and two more facing back to cover the room and the audience. From there, the signals from the Decca Tree and spot mics, if needed, are

A view from the stage, looking up: The Decca Tree setup comprises three Shure KSM32s facing the stage and two facing the back to capture the room and audience.

split, with the house portion going through a Midas Venice console and high-end processing. The other runs travel downstairs to the basement, where they connect to a 1978 4-bus Neve broadcast console with 16 direct outs, which, in turn, go through Meitner A/D converters and finally to a 48-channel Genex DSD recorder. Once it's recorded to digital, Rosenthal takes the Genex hard drives back to The Magic Shop and mixes on his 80 Series Neve console and Sony Sonoma workstation.

Capturing the recordings properly is part of a delicate juggling act. "One of the things that makes The Living Room unique is that the bass and drums are not amplified through the P.A.," Warda points out. "The concept here is to amplify the vocals, acoustic guitar and the occasional Wurlitzer or pump organ. Because you're not sending these instruments though the P.A., the surround mics can capture their placement onstage in a very accurate way.

"The hard part with this system is really working out the balance between the musicians and the speakers. To do that, you have to think more as a musician, so you have to tell a musician, 'Turn your amp down,' or, 'Don't hit the drums as hard.'"

The true mark of success for The Living Room's ambitious live DSD 5.1 recording process may be that Rosenthal and his team make it look so easy. "If you do a lot of preparation, then it can be simple," Rosenthal says. "The technology—the Decca Tree—exists to do it, getting the room to be acoustically tuned, and DSD is a digital format that can acoustically capture and reproduce it for you. Put that along with people that can play and sing and I think that warrants making these recordings." ∎

bal mics and a ride mic. But all the toms, kick and main snare are [Clavia] ddrum triggers," Pruce explains. "It means we can put in all the sounds from the albums and have [the drummer] trigger them." The electric guitars are miked with Audio-Technica 4050s. And, Pruce notes, "We've got a bagpipe player who is featured on a new intro for the track 'Into the Groove,' which also features two military snares that are all miked with Shure SM98s tied to Sennheiser

near the drummer and keyboardist, "just to give it some weight on the bass; otherwise, it tends to sound a bit thin."

From New York City, the Re-Invention Tour continued on in the U.S. and then headed off to the UK, Holland, Ireland and France before it wraps up in mid-September. And thanks to Pruce and company, Madonna won't have trouble re-creating her sound in each new venue and country she plays. ∎

Gaby Alter is a freelance writer, songwriter and composer based in Brooklyn, N.Y.

Madonna crew chief Matt Herr

Evolution G2 wireless.

All vocal mics are wireless Sennheiser SKM 3072; Madonna also occasionally uses a headset mic custom-made by Gene Phillips, who operates the 33 channels of RF, with a Sennheiser MKE105 during the show. Pruce used the mics successfully in the past with Duran Duran, noting that Sennheiser products have exceptionally good radio frequency qualities. "Sennheiser's been very good," he says. "Paul Hugo came down with Gene Phillips, and they worked out a frequency plan, which needs to be tweaked in every new city."

Monitoring is done on two PM-1D consoles run by two different engineers. Sean Spuehler processes Madonna's vocals on one, running them through a Mac equipped with Logic, the Electrix Filter Factory, preamps and an EL8 Distressor. He sends a stereo mix of the vocals to Ian Newton, who operates the second monitor console. Newton adds in the band and sends out the final monitor mix to everyone. Both Madonna and the band use Ultimate UE10 in-ear monitors through Sennheiser G2 IEM systems. "We do fly some sidefills—four Clair Bros. R4 sidefill cabinets and two subs—mainly for the dancers so that they can feel the music and get a bit of energy onstage," Pruce says. There are also three subs positioned

ZOOMING

In on the

By Bruce Borgerson

ZONE

Remote System Control With WiFi and Bluetooth

Hang up those tattered running shoes. Give the walkie-talkies to the kids. Now you can tune large multizoned sound systems without running back and forth between front of house and the nosebleed seats or, alternatively, struggling to explain to an assistant over a little plastic squawker exactly why the vocals sound pinched in the delays.

Yes, that's all in the past. Fast-forward to the present day—with a tip of the hat to the pioneering BSS Varicurve remote that tantalized us with possibilities—and the wonderful new world of wireless networking. All the things you used to do with your computer hardwired to the FOH racks can now be done sitting anywhere in the venue with a few quick strokes on a tablet PC.

If you're a top-line touring operator, then you probably know about the new high-end, Ethernet-based devices that mate seamlessly over WiFi wireless devices. But even if you can't afford pricey DSP system controllers with built-in networking, you can still control anything with an RS-232 serial port by assembling your own off-the-shelf WiFi rig with Ethernet-to-serial

translation. And, if network configuration of any kind gives you the willies, then you might want to check out a new streamlined wireless option: Bluetooth.

WIRELESS NETWORKING BASICS

For the networking novice, here's a quick review of basic technology and terminology. The term WiFi refers to a group of wireless networking standards that were adopted by the computer industry more than a decade ago. By far the most common protocol is 802.11b, though many newer devices also offer the faster 802.11g technology while maintaining backward-compatibility with 802.11b devices. In the simplest terms, WiFi can be thought of as wireless Ethernet. That makes sense because the primary goal from the outset was to allow wireless connectivity of networked computers in the office and provide Internet access just about everywhere. Virtually all WiFi routers are designated Class-1 devices by the FCC, which gives them an effective range of about 100 meters, although this range can be extended by using larger external antennas.

Bluetooth is somewhat similar to WiFi—and yet completely different. On the one hand, it shares WiFi's same 2.4GHz spectrum (along with cordless phones and microwave ovens) and has the same maximum radiated power restrictions. On the other hand, it's a much newer standard for wireless data transfer, with roots in the Scandinavian-dominated cell phone industry. (Bluetooth was the moniker attached to Harald, a medieval Danish monarch.)

Designed for a broad range of applications, the Bluetooth protocols are—at the risk of oversimplification—more generic, robust and user-friendly than WiFi, although certainly less-suited to intensive computer networking chores. The first Bluetooth accessories to hit the market (keyboards, mice, cell phone headsets, etc.) were Class-2 devices, with a nominal range of a mere 10 meters. But a number of higher-power Class-1 Bluetooth devices have come on the market in recent months, holding out the promise of a low-cost, no-brainer alternative to WiFi in limited system-control applications.

FULLY NETWORKED SYSTEMS

Because WiFi was designed as a wireless replacement for Ethernet, obviously the most efficient way to shuttle data back and forth is by using a fully addressable networked device. That's the approach taken by Lake Technology's Contour loudspeaker processor and TC Electronic's new EQ Station digital parametric equalizer.

Both devices are native to the Ethernet protocols, so setting them up on a network is relatively simple and requires no protocol translation. Essentially, these units plug directly into your LAN (local area network) using either a wired connection or WiFi wireless devices. Each device on the network is individually addressable, so physical location is unimportant.

It's not surprising that these two units are among the newest on the market, and it's likely that other manufacturers will migrate in this direction. (One well-known company hinted that a development in this area will be announced soon but would supply no details.) If you're considering Bluetooth's technology, then you'll want to know its perks. First, it's fast: The interface can update at speeds of 50 fps, which is practically instantaneous. Native networking also facilitates grouping functions across different processors, even if the units are physically located in different parts of the venue. Upgrading to the faster 802.11g is simply a matter of plugging in the newer WiFi devices. And, finally, as Ethernet natives, these devices will work hand-in-glove with newer (and forthcoming) amplifier control systems and digital consoles, which are also trending in the same direction.

Obviously, both Lake Technology and TC Electronic had WiFi applications in mind while initially designing these products and decided to embed networking capability to woo the high end of the market. It won't be surprising to hear then that these systems are on the pricey side ($5,000, give or take). But for touring companies that want seamless WiFi capabilities, this might be the way to go.

WIFI-TO-SERIAL

Of course, live sound companies of all sizes have invested considerable capital in their current loudspeaker processors, and as they otherwise prove satisfactory, there's no need to ditch them simply to go wireless. Nearly all loudspeaker processors (and most digital EQs) on the market offer external computer control via serial ports. If you want to control these devices while dancing with your tablet in the balcony, you have two options: Link the remote computer to a host computer (normally at FOH) that is, in turn, connected via serial cable to the DSP device or use a dedicated external device to translate the Ethernet data packets into serial commands.

Scott Harmala of ATK Audiotek pioneered the dual-computer approach and continues to employ it—with significant upgrades along the way—in his current systems. "I had been dreaming of doing this for years, but technology had to catch up with me," he says. "I put my first system together about four years ago using a Fujitsu tablet PC, long before they became mainstream. I had a separate Lucent Technologies 802.11b card with a remote antenna mounted up on the tablet for extra range. And I used the [Symantec] pcAnywhere software for remote control of the host computer in the FOH rack, which then connected to the processors."

For the most part, Harmala has stuck to the formula, though his new Fujitsu Stylus 4000 has remote desktop built in, eliminating the need for the pcAnywhere utility. Although his new tablet PC also has

The Lake Contour system features a wireless tablet-style remote.

built-in WiFi, he still uses a separate Orinoco card with external antenna for the extra range—a key consideration when working jobs like the Super Bowl broadcast. Harmala has applied his networking expertise to fine-tune his software packages, keeping latency issues to a minimum such that he finds operation essentially transparent. He currently uses his WiFi rig to control XTA processors (mainly DPA 226), amplification via QSControl and, increasingly, to tweak the matrix outputs of Yamaha's PM-1D console. The result of this combination provides better balances for the complex multizone systems used for large-scale broadcast events like the Grammy™ Awards telecast.

SERIAL DIRECT

If you prefer skipping the second computer and instead run the control application on a remote laptop or tablet, then you can achieve essentially the same results using a dedicated device like the PRAM Technologies WSL-2, distributed by Production Radio Rentals of

ZOOMING In on the ZONE

White Plains, N.Y. Developed jointly by Production Radio's Henry Cohen and Tom Bensen of Group One (the U.S. distributor for XTA), the WSL-2 offers a pre-packaged and fully supported solution that incorporates, in a single-rackspace unit, the WiFi base station, the serial-to-Ethernet translator card and connectors for Ethernet, RS-232 and RS-485. Though initially intended for XTA applications, the PRAM devices are now used extensively worldwide with loudspeaker processors of all types, as well as with equalizers, preamps and digital consoles.

The WSL-2 package appeals to those who want long-range, bulletproof reliability and technical expertise on-call. Using external antennae, PRAM claims ranges of 1,200 to 1,500 feet with standard whip antennas, and up to 3,000 feet and beyond with optional antennae. PRAM also works with customers on developing custom software packages and addresses latency issues. The current cost of a WSL-2 system is about $1,600.

BOWIE BOTH WAYS

One artist who has been using WiFi control to full advantage is David Bowie, with wireless system control fully integrated into the equipment packages for both the European and American legs of his current Reality tour. (See the "Tour Profile" in *Mix*'s March 2004 issue.) Although the tour used JBL VerTecs on both sides of the Atlantic, the loudspeaker processors and WiFi rigs were different: XTA 226 processors and PRAM WSL-2s (from New York's Firehouse Productions) for the U.S. shows and BSS Soundwebs with a custom-assembled WiFi rig (by Liverpool, England's Adlib Audio) for the shows in Europe.

Essentially, with ample in-house expertise available, Adlib worked with Bowie FOH engineer Pete Keppler and systems tech Tony Szabo to create an off-the-shelf solution for essentially transparent WiFi control of multiple Soundweb units. As befits a tour of this magnitude, high-end components were deployed throughout: a Cisco Aironet wireless access point, a Moxa NPort 16-port RS-232-to-LAN translator and a top-line Fujitsu ST4100 tablet equipped with separate WiFi card and dipole antennae.

Though the implementations of WiFi technology were somewhat different on the two tour legs, Keppler found the overall functionality essentially the same—and a godsend. "With this setup, I can go to

the top row, listen to the system and actually tune it in real time," he says. "For example, I have the front arrays zoned top, middle and bottom, and for the upper seats, sometimes I'll be pushing 150 meters to the back row. So I'll end up using a substantially different EQ up there as opposed to the first lower cabinets facing down at the rows in front." Keppler says that he spends an hour or two with the tablet before each show, largely tuning by ear, both solo and working with the full band during soundcheck.

WIFI FOR ALL?

Systems tech Szabo was so impressed by the WiFi rig that he looked into assembling a simpler system for use on later projects. To his delight, he discovered that a simple do-it-yourself rig can be quite affordable. He opted for a Linksys access point (about $100 and dropping) and a single-port Moxa Nport translator device, about the size of a cigarette pack and selling for around $200. But before you take the plunge, both Szabo and Harmala issue some caveats. Putting together your own WiFi system does require networking savvy, and you need to be prepared to face rapidly escalating interference problems.

"The downside of putting together your own system is that it does require that you understand the whole concept of TCP/IP and how that fits in with serial control protocols," Szabo cautions. "It's not that hard to work it all out if you know what you're doing, but it's hardly your normal audio thing."

And then there's the increasing ubiquity of WiFi. "When I started doing this, I was the only guy that would light up 802.11b on the shows," recalls Harmala. "But now it's everywhere. I have to coordinate with lighting and production departments and with the venue. I'm surprised at how fast this has happened."

The problem stems from the fact that while the WiFi standard has 11 channels, only three—1, 6 and 11—are nonoverlapping. The underlying problem is that the designers of 802.11 standards did not count on so many *different* networks in use at the same time in the same place. Szabo found the problem most apparent when Bowie played in San Jose, Calif.—the heart of Silicon Valley: "At the [HP Pavilion], every corporate box had its own access point with proper roaming. They must have had 30 or 40 of them in there spread across several channels. I asked if they could clear out one channel for me, but they couldn't. So we asked them to turn the whole system off while we tuned the P.A. But that meant we couldn't make any adjustments during the show, which, fortunately, we rarely do anyway."

A BLUETOOTH ALTERNATIVE?

Is there yet another way that's simpler, cheaper and less prone to interference? One Dallas sound company engineer seems to be on to something: the new higher-power Bluetooth devices.

Until now, Bluetooth has been "poohpoohed" by professionals as an underpowered, consumer-only technology. But perhaps emboldened by his experience and

Ed Spoto of Crossroads Audio (Dallas) shows off his Bluetooth setup.

education (including an EE degree from Vanderbilt University in Nashville), Ed Spoto of Crossroads Audio went on a quest for something newer and better to replace the serial cable. Searching the Internet late last year, he discovered that two companies in Europe were offering Bluetooth-to-serial converters: Free2move in Sweden and Brainboxes in the UK; California's Socket Technologies has since entered the market, as well. These are all Class-1 devices with a nominal range of 100 meters when paired with companion Class-1 USB-to-Bluetooth adapters. (Be sure to look for the ones equipped with stubby antennae.) The serial devices were hard to find Stateside, but Spoto located the Free2move F2M01 at eXpansys USA, a dotcom division of the UK-based firm. He immediately bought three for $99 each. (As of this writing, demand has pushed prices up to around $150.) The USB-to-Bluetooth adapters, like Spoto's Linksys USBBT100, are widely available for under $50.

How does it work? Even better than he had reason to hope, says Spoto. "It has turned out to be reliable and user-friendly, not to mention cheap. [Laughs] That's the whole story in a nutshell: You plug it into the port and it's ready to go. It's already set up with a standard port configuration. It reads it on the other end, you assign it to a program and away you go."

Spoto says that his whole configuration involved one optional step, which took only a few minutes. "You can tell the Free2move to be either master or slave, either waiting for a connection or continuously transmitting. The default was to wait, but I repro-

New Sound Reinforcement Products

CREST PERFORMANCE SERIES

A new division of Crest Audio, Crest Performance is now shipping its CP-6210 rotary DJ mixer, CPS-1203 spectrum-enhancement processor, CPT Series loudspeakers and CPX Series power amps. For more details, visit its new official Website at www.crest-performance.com.

ELECTRO-VOICE SBA760 SUBWOOFER

The SbA760 powered sub from Electro-Voice (www.electrovoice .com) is rated at ⁷60 watts and comes with a stereo crossover and the company's 15-inch EVS15FR long-excursion/low-frequency driver. Used with E-V's new 12-inch SxA360 two-way active speaker, the sub extends acoustic output down to 40 Hz. The roadworthy enclosure is fitted with four rollers for a smooth ride and a scratchproof Futura™ coating.

GALAXY AUDIO NEOLITE HOT SPOT

The world's most popular personal monitor, Galaxy Audio's (www. galaxyaudio.com) Hot Spot is now offered in a lightweight (6.1-pound), high-efficiency package. The Neolite Hot Spot puts two 5-inch, high-output neodymium drivers within a compact, molded enclosure with internal mic standmount and 7-position volume control. The frequency response (150-18k Hz) is tailored for vocal response; total power handling is 200 watts continuous. Retail is $169.

SLS UPDATES LINE ARRAY SIMULATION SOFTWARE

SLS Loudspeakers (www.slsloudspeakers.com) is releasing a new version of its Line Array Simulation Software (LASS), now with an Optimizations module that dramatically reduces the time required for line array configuration and rigging parameters design. The optimization feature is said to simplify the entire process and can produce dependable results even if the user does not have previous experience with line arrays and their complex radiation patterns. The LASS program optimizes the number of boxes and proper splay angles between each of the boxes, maximizing coverage and eliminating guesswork.

IF BAD SOUND WERE FATAL...

The new book, *If Bad Sound Were Fatal, Audio Would Be the Leading Cause of Death*, by Don and Carolyn Davis, co-authors of the seminal text *Sound System Engineering*, takes readers on a fascinating and often hilarious ride through their lives as creators of Synergetic Audio Concepts (Syn-Aud-Con), the independent audio educational program that has benefited thousands worldwide since its founding more than 32 years ago. The book also has a heavy historical dose of the audio giants, whom the Davises personally knew during their combined 50-plus years (and counting) in the industry. The 364-page text is available from Author House (www.authorhouse.com) for $20.75 (plus $5.75 for shipping).

EAW AX SERIES ARRAYABLE LOUDSPEAKERS

The new AX Series loudspeakers from Eastern Acoustic Works (www.eaw.com) are engineered to array seamlessly, with a tri-axial design that incorporates a revolutionary new coaxial driver. The coaxial mid/high-frequency driver combines an 8-inch cone and a 1.4-inch exit compression driver into a sealed aluminum chassis that acts as the heat sink for the entire assembly. Both drivers share a single neodymium magnet, reducing weight and cost. Dual 12-inch woofers (located on opposite ends of the enclosure) create an acoustic origin on-axis with the rotatable, coaxial MF/HF driver. For use in horizontal and vertical arrays, the enclosure has trapezoidal angles on all four sides. Three models are available in dispersions from 45°x45° to 90°x60°.

YORKVILLE COLISEUM LINE

Yorkville (www.yorkville.com) debuts the first cabinet in its Coliseum Installation loudspeaker that uses the Unity Summation Aperture Horn technology developed by Tom Danley of Sound Physics Labs. The Coliseum CU15's Unity horn combines a 1.75-inch compression driver and three 5-inch ceramic-magnet midrange drivers on a high-efficiency conical horn with both HF and MF drivers in a single 60°x60° horn, reproducing the entire 300-20k Hz range from one source. The CU15 handles 800 watts of power; has integrated flypoints on all sides; Speakon, binding post and ¼-inch inputs; and can easily be installed in an application or an array.

BY OLIVER MASCIAROTTE

Pedant In a Big Box: Part Four

A Glossary of IT Terms for the Audio Professional

ILLUSTRATION: PHOTODISC

Since the March 2004 issue, "Bitstream" columnist Oliver Masciarotte has been flipping through his audio data dictionary to define today's top IT terms as they apply to the audio professional. This month, we bring you more tech talk than you can shake an *Ethernet* cable at. Italicized words will be, or have been, defined in the glossary, some in upcoming issues.

ISDN (INTEGRATED SERVICES DIGITAL NETWORK): *telco* standard that allows a single twisted-pair to carry voice and digital data simultaneously over the *Public Switched Telephone Network*. Though ISDN was intended to replace *POTS*, which it did in Europe and elsewhere, it never caught on in the U.S. due to cost and political will. ISDN is being supplanted by *packet*-based network standards like *DSL*.

ISOCHRONOUS: a transmission technique that provides synchronous data transmission over an *asynchronous* network. Isochronous transmission, supported in the *FireWire* and *RTP* protocols, guarantees *QoS* and thus is particularly useful to deliver audio and video over a networked connection.

IT (INFORMATION TECHNOLOGY): an acronym that encompasses all aspects of computer science–impacting enterprises.

kb, KILOBIT: One kilobit equals 1,000 *bits*.

kB, KILOBYTE: One kilobyte equals 1,000 *byte*s.

KVM (KEYBOARD, VIDEO AND MOUSE): active or passive methods of providing remote control of a computer by extending the bi-directional keyboard and mouse signaling and the video display information.

LAN (LOCAL AREA NETWORK): a data *network* that spans a relatively small localized area, such as a building or campus.

LATENCY: a generic computer term, analogous to propagation delay, that quantifies the delay between the transmission of a command, or *datum*, and the acknowledgment of the command or reception of that datum.

LAYER: See *OSI Model*.

LBA (LOGICAL BLOCK ADDRESS): a method used in modern disk drives to translate the physical location (cylinder, head or sector) into an abstract address that can be understood by a disk controller.

LDAP (LIGHTWEIGHT DIRECTORY ACCESS PROTOCOL): a popular *protocol* for providing directory services. Despite the name, LDAP isn't very "light weight": LDAP has been adopted by several companies including Netscape Communications and has become a de facto standard for directory services. Other LDAP-compatible offerings include Novell's Novell Directory Services (NDS) and Microsoft Corporation's Active Directory.
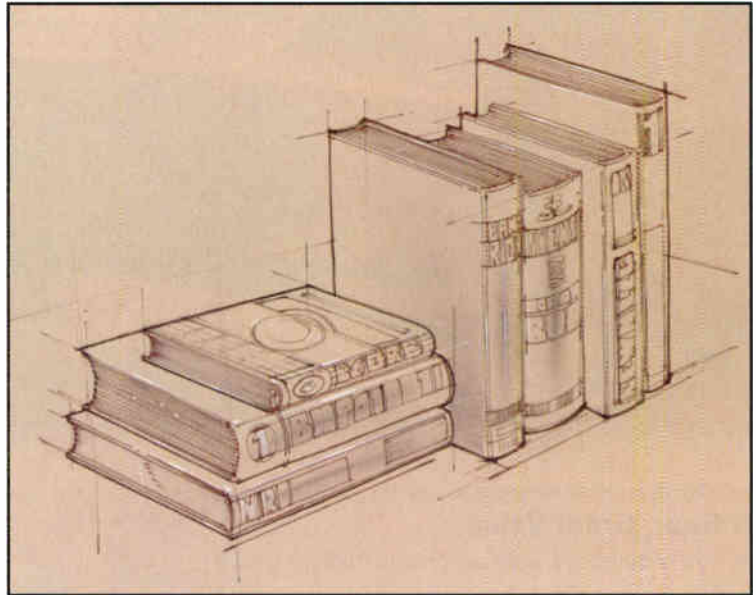
LINEAR TAPE: Many tape formats, whether audio or data, rely on physically fixed head assemblies, while others, such as video transports, use heads that move relative to the tape in a nearly perpendicular and rotary fashion. To achieve the high-frequency magnetic transitions necessary to encode wide-bandwidth signals, designers have to either move the tape very quickly past the head or move the heads really quickly past the tape. The former approach spawned data formats such as *DLT*, *LTO* and *VXA*. The latter approach, pioneered by Ampex in its revolutionary videotape machine, employs a rotating-head assembly that spins slowly past moving tape. Videotape technology has morphed in data formats including *DDS* and *Exabyte*'s family of products.

LINK: a dual-*simplex* transmission path between a pair of network elements such as nodes (*HCAs* or *TCAs*) or *switches*. Link hardware is specified as dual-simplex: Send and receive wires each have their own grounds and transmit data unidirectionally and independently. The more common simultaneous bi-directional method is *full-duplex*.

LOSSY CODEC: See *Codec*.

SOAR

Eventide hardware, optimized for live performance, lets you ascend to new heights. The Eclipse™ and the Reverb 2016 are designed for the road with durability and real-time performance built-in. But don't take our word for it...

Eclipse

ULTRA-FAST PROGRAM CHANGE • THE BEST H3000 PROGRAMS • PRISTINE 96 KHZ PROCESSING • XLR + 1/4" TRS I/O, 24-BIT A/D/A

"The Eclipse is a powerful tool [its] pristine sonic quality, plethora of connections and high sample rate make it a versatile tool for tweaking, fixing and basic sweetening of digital or analog tracks. The Eclipse is destined to become a classic."
—**Mark Frink, Mix**

"Whether being used for a lush reverb on the orchestra tracks, or as a stereo pitch-chorus on vocals, or as a completely warped, swirling delayed pitch-shifted ambience, the Eclipse shone."
—**J. Arif Verner, Pro Audio Review**

"A stunningly powerful processor. If you can't get new sounds (or better versions of old sounds) using the Eclipse, the problem isn't with your gear."
—**Mitch Gallagher, EQ**

Reverb 2016

CLASSIC SP2016 REVERBS • NEW HIGH DENSITY REVERBS • MENU-FREE OPERATION • XLR + 1/4" TRS I/O, 24-BIT A/D/A

"The Reverb 2016 is as versatile as a stand-alone reverb could ever be, sounds outstanding, and is without peer in its simplicity of operation....make the 2016 anyone's first choice for a sound reinforcement reverb unit."
—**Peter Arsenault, FOH engineer**
(Jon Spencer Blues Explosion, Luna, Sussan Deyhim)

"It is rare when a company reissues gear and it turns out to be actually better than the original. I am using the Reverb 2016 on every project and I am finally retiring my old SP2016."
—**Dave Pensado, recording engineer**
(Christina Aguilera, Pink, Mya, Jonny Lang, Britney Spears)

"I'm excited to finally have one of my favorite reverbs available again."
—**George Massenburg, Grammy Award winning engineer**

Eventide®

One Alsan Way, Little Ferry, NJ 07643
email: audio@eventide.com, web: www.eventide.com

- **LTO** (LINEAR TAPE OPEN): a middle-tier, linear data tape format based on an open standard originally developed jointly by Hewlett-Packard, IBM and Certance, the company Seagate spun off after its acquisition of pioneer Conner Peripherals. LTO competes against *DLT* and *SAIT*.

- **MAC** (MEDIA ACCESS CONTROL): As part of Layer Two, the second-lowest layer in the *OSI Model*, MAC provides a node's interface between Layer One, the *PHY* and the LLC (logical link control), the "upper," more abstract sublayer of Layer Two.

- **MAC ADDRESS**: the hardware address of a network device. MAC addresses, rather than IP addresses, are usually used when security is a high priority.

- **MAN** (METROPOLITAN AREA NETWORK): larger than a *LAN*, a data *network* that spans a metropolitan area.

- **MANAGEMENT, TO MANAGE**: In *IT* circles, management means the setup, modification and maintenance of IT assets.

- **MARKUP LANGUAGE**: a machine-readable language that abstracts the layout of a document. Markup languages separate the structure and appearance of a page from its content. See *xML*.

- **MDI** (MEDIA-DEPENDENT INTERFACE): a *TLA*, which means the standard RJ-45 connector used for *Ethernet* over *UTP*. Specifically, an MDI provides the physical and electrical connection to the cabling. An MDIX, or MDI crossover, is a version of MDI that enables connection between like devices without an intervening hub or switch.

- **MEDIA ACCESS CONTROL**: See *MAC*.

- **MESH NETWORK**: Mesh *networks*, characterized by their lack of any centralized organization, are designed to be "multihop" systems in which any member device can transmit packets through the network. Typically ad hoc in nature, nodes can be added or removed to a mesh network without affecting the overall function. Mesh networking was designed to be more resilient than traditional hierarchical network *topologies*.

- **METADATA**: The data about the data, metadata is ancillary or additional information carried with some essence that provides additional context, modification or description. ∎

OMas often feels overextended, trying to wear all of the hats needed to make a small business successful. To keep things in perspective, he listens to KCRW.org streaming on the Web.

World Radio History

Tools of the Trade

VOXENGO SONIFORMER 2.2

New from Voxengo (www.voxengo.com), Soniformer 2.2 is a mastering tool that adds M/S encoding of L/R stereo signals into mid and side channels, which can then be compressed or expanded as needed. After processing is performed, the M/S signal is converted into a L/R signal. Additional features include spectral compression, gain-change meters, 32-band spectrum analysis, two level-detector types, mono-to-stereo processing and up to 192kHz sample rate support. Price: $59.

ALTEC LEGACY A7

Long out of production, Altec (www.altec lansing.com) has reissued its classic Voice of the Theatre A7-500 speaker as the Legacy A7. The two-way bass-reflex enclosure is identical to the dimensions of its older counterpart, but constructed of 13-layer Baltic birch in a rugged black-splatter finish. Legacy A7 was acoustically matched to an original A7 using a 15-inch 515-8G woofer paired to a 511B sectoral horn—mount-

able internally or atop the cabinet—with a 1-inch exit 902-8T HF driver and a passive crossover for an improved top-end response (35-22k Hz). U.S. price: $4,300, shipping included.

MINDPRINT EN-VOICE MK II

Mindprint's (www.mindprint.com) En-Voice Mk II tube preamp/EQ/compressor channel strip puts optional USB interfacing, 24-bit/96kHz conversion into a single-rackspace chassis. Features include line/instrument/mic input with phantom power, a balanced insert point, 80Hz switchable low-cut filter, 3-band parametric EQ, tube compressor with adjustable saturation and eight attack/release presets, a low-cut sidechain filter and TRS/XLR balanced analog out.

EDIROL FA-101

The new FA-101 10x10 FireWire audio interface from Edirol (www.edirol.com) offers support for Mac OS X (Panther) and WDM or ASIO support for Windows XP. This 24-bit half-rack audio interface can draw power directly from a FireWire port and records 10x10 at 96 kHz or

6x6 at 192 kHz. I/Os include 8x8 analog with two 48V preamps, stereo optical S/PDIF, MIDI I/O and a ¼-inch headphone output with built-in direct-through mixing capabilities for low-latency monitoring. Price: $695.

GEORGE PENDERGAST ESSENTIAL RHYTHM LOOPS

Dishwalla drummer George Pendergast has released Essential Rhythm, a diverse assortment of grooves, breaks and fills organized by tempo. The royalty-free $49.95 collection can be used with Acid or any .WAV-compatible audio program, including Pro Tools, Cubase, Logic, Reason and more. The set also includes samples of Summercamp bassist Misha Feldman, percussionist Chester Coolie (Big Bad Voodoo Daddy) and engineer/guitarist/producer Thom Flowers. Hear it at www. georgependergast.com.

CYCLING '74 UNNATURAL RHYTHM

Unnatural Rhythm from Cycling '74 (www. cycling74.com) is a library of organic, extended-form grooves produced by Ron MacLeod that range from heavily processed tracks to tribal, mechanical pounding to syncopated sounds inspired by '70s-era Buchla and Serge modular synths. The 24-bit .WAV files are provided in 48 kHz for DVD and film and 44.1kHz versions for compatibility with music composition tools. The release also includes 24-bit REX-formatted versions of all applicable loops for use within Reason or any 24-bit REX-compatible audio sequencer. Price: $99.

GRANTED SOFTWARE AU MANAGER

Giving audio multiplatformers a leg-up in load-up time, Granted Software's AudioUnit Manager 1.0 for Mac OS X is available as a free download at www.grantedsw.com. The freebie organizes AudioUnits into sets so that users can load just the AudioUnits they need for a particular application. A command line option allows users to select a set in an AppleScript before launching an AudioUnit host.

SENNHEISER MD 21

Looking pretty good for 50, Sennheiser's (www.sennheiserusa.com) MD 21 dynamic microphone takes one last bow in a limited production of 100 units. The original MD 21U offered uniform frequency response and was used for both speech and music broadcasting. It features an omnidirectional response, an integral desktop stand and is highly insensitive to pop/wind noise. Price: $399.

MPCSOUNDS
ETHNIC HIP HOP COLLECTION

MPCsounds.com's latest sound collection for Akai MPC1000/2000/XL/3000/LE/4000 drum machines has more than 30 melodic ethnic instruments (ranging from kanun to dagoba to Tibetan temple) and 21 ethnic percussion instruments such as talking drum, djembe and cajón. It's available in Turbo and Regular versions. Turbo has 670 stereo percussion sounds mapped out across all MPC banks and pads. All percussion is multi-sampled and mapped across the MPC pads in both major and minor scales, allowing easy creation of riffs. Prices start at $29.95.

DOLBY MODEL 585

Offering solutions for post, broadcast and studios, Dolby's (www.dolby.com) Model 585 is an advanced, real-time audio timescaler for multichannel audio (up to eight channels), providing high-quality pitch correction. The $8,000 unit processes PCM audio from any multichannel system, with special consideration for supporting decoded Dolby E and Dolby Digital audio and their associated metadata. The eight audio channels can support multiple individual audio programs such as 5.1 +2, four stereo pairs or eight mono channels, and all other Dolby E program configuration modes.

GEFEN CAT5-9000

For the high-end audio user seeking an all-in-one extension solution, the Gefen (www.gefen.com) CAT5-9000 accommodates a diverse selection of peripherals, including a monitor, two audio lines and a microphone, plus PS/2, USB and RS-232 peripherals. Components are extended through small rackmountable send/receiver units positioned locally at the computer and remotely at the workstation. They are then connected by Cat-5 cables, which allow peripherals to be distanced by hundreds of feet. Price: $995.

PCAUDIOLABS
NUENDO 2.0 TUTORIAL

pcAudioLabs' (www.pcaudiolabs.com) *Video Manual and Tutorial: Volume 1* CD-ROM has nearly three hours of video instruction on the Nuendo mixer and related features. Topics include VST multitrack setup, VST connections, mixer overview, using inserts, EQs and sends, audio recording/routing/signal flow, MIDI, VST instruments and ReWire, surround mixing and more. Price: $49.

APOGEE ROSETTA 200

This 2-channel version of Apogee's (www.apogeedigital.com) Rosetta 800 outdoes its big brother by offering the CODA Audio Finishing Module, a trio of tools that

includes Aptomizer (a level normalizer), sample rate conversion and UV22HR dithering. The Rosetta also includes up to 192 kHz of support with Apogee's Intelliclock, MIDI I/O, and two channels of AES, S/PDIF (co-ax and optical) and ADAT/SMUX I/O. Options include Soft
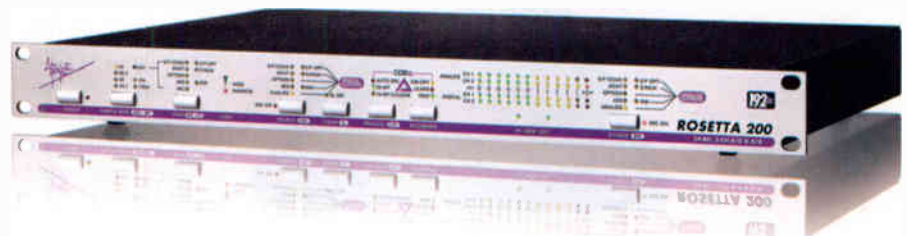
Limit digital overload protection, a FireWire expansion card and a card for direct connection to Pro Tools|HD and Mix systems. Price: $1,995.

TRILLIUM LANE TL SPACE

New from Trillium Lane (www.tllabs.com), TL Space—the first TDM-based convolution reverb—can harness up to eight Pro Tools|HD DSP engines in parallel to deliver smooth, low-latency convolution processing. Internally, TL Space uses 32-bit block, floating-point processing for maximum sonic fidelity. When used with Pro Tools|HD Accel systems, it provides zero latency processing, essential for live studio work. Designed for Mac OS X or Windows XP, it includes a comprehensive library of high-quality sampled reverb spaces and effects, and can easily import existing impulse responses in common convolution formats.

TRIPLE P PYRAMID MONITORS

Looking like Pharaoh's answer to Auralex, Triple P Designs' (dist. by Independent Audio, www.independentaudio.com) U.S.-made monitors are purposely limited in frequency response to emulate consumer playback systems on TVs, boom boxes, computer speakers and car stereos. The concept is nothing new, but now it can be done in style. Price: $299.

ALIENWARE COMPUTERS

Supercharged, user-configurable audio PCs from Alienware (www.alienware.com) come with AMD or Intel processors and feature quick-release drive bays, dual processors, whisper-quiet operation, upgradeable architecture, unique CardKeeper retention devices and more. Systems ship within seven days and can be preloaded with software, including Nuendo, Sonar 3, Project 5, Adobe Audition, Acid, Vegas, Reason, Ableton Live 3 and more.

SRS ENCODER/DECODER FOR PRO TOOLS

The first to fill a niche that's been empty since the inception of Pro Tools 6, SRS Labs (www.srslabs.com) announces a Circle Surround encoding software plug-in for Digidesign's Pro Tools. The $795 plug allows Pro Tools users to offer multichannel surround sound to their clients—without leaving the host app.

RAIN DESIGN ILAP

From Rain Design (www.raindesigninc.com), the folks who created the slick, futuristic iGO, comes iLap. The all-aluminum stand is adjustable for lap and desktop use and keeps your Mac/PC notebook computer (and your legs!) cool by raising it off the worksurface, letting airflow cool the unit. The price for 12/15/17-inch models is $49.90, $59.90 and $69.90, respectively.

OMNIMOUNT PLASMA MOUNT

For studios upgrading to plasma displays, OmniMount (www.omnimount.com) offers the U3TILT plasma mounting system. The U3 secures up to 63-inch/200-pound plasma displays and features a sliding wall plate designed for mounting to wall studs 16 to 24 inches on-center. Price: $249.

CLEARSONIC SORBER BAFFLES

ClearSonic's (www.clearsonic.com) Sorber S5-2L panels ($180) are 24x66x1.6-inch, freestanding, acoustic absorption baffles made from two sections of compressed Fiberglas inserted into a heavy-duty cloth case with a center hinge. Retail is $180, and smaller 44-inch S4-2 units are also available at $120 each. Units set up and tear down in seconds. Multiple units tack together to grow with your needs and are available in light or dark gray.

NEW TUBE-TECH PRODUCTS

The SSA 2A stereo summing amp from Tube-Tech (dist. by TC Electronic, www.tc electronic.com) was designed to bring the warm sound of tube mixing amplifiers to any digital audio mix. Eight stereo inputs and one stereo output are summed together with low-noise, low-distortion tube amps. Retail is $3,895. Tube-Tech also debuts the MMC 1A, which combines a mic preamp with a multiband tube compressor. The unit's flexible inputs include a ¼-inch hi-Z instrument jack, a Lundahl transformer-equipped mic stage (with 69 dB of gain and variable impedance control) and a line-level jack for accessing the compressor directly. The 3-band optical compressor has ad-

justable crossover points for setting the dynamics action, and the unit has a list of $3,995.
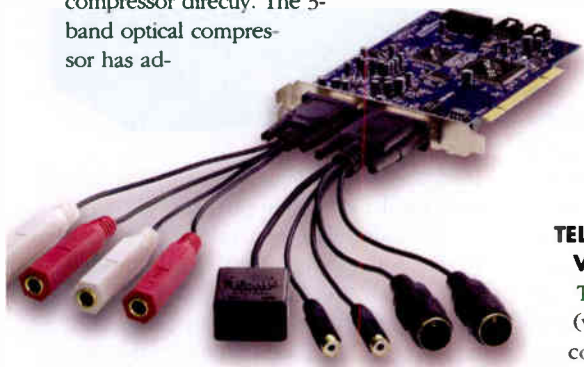
E-MU 0404 DIGITAL AUDIO SYSTEM

E-mu Systems (www.emu.com) debuts the 0404 Digital Audio System, a low-cost ($99 street), 24-bit/96kHz PCI audio interface that delivers everything needed to record, mix and playback audio from a PC. The 0404 works with all major PC audio/sequencer apps, offering ¼-inch analog I/O, MIDI and S/PDIF (optical and co-ax) digital I/O and all of the hardware-accelerated effects, mixing and monitoring of E-mu's 1820M/1820/1212M systems. It ships with comprehensive ASIO 2.0 and WDM drivers and a software package that includes SFX Machine LT and Steinberg's Cubasis and WaveLab Lite.

TELEFUNKEN NA VINTAGE REISSUES

Telefunken North America (www.telefunkenusa.com) has completed its entire series of micro-

phones that re-create the legendary vintage Telefunken sound. Detailed reverse-engineering has produced meticulous reissues of the classic Telefunken mics, including precious new-old-stock vacuum tubes. The mics include wooden mic box, flight case, external power supply, swivel connector cable and five-year limited warranty. Now shipping, the series (pictured left to right) includes the U47M (Short Body), U47M (Long Body), Ela M251 (with AC701K tube) Limited Edition, stereo Ela M270, the Ela M251E (with 6072A tube), Ela M12 and the Ela M14, with the latter being the first in a new line of affordably priced studio mics. Prices range from $2,995 to $14,995 and more.

Upgrades and Updates

Version 1.2 operating system for HHB's (www.hhb.co.uk) PortaDrive location audio recorder offers enhanced metadata support, Ethernet data transfer and the ability to record directly in Pro Tools V. 5 format and simultaneous recording to an external disc...**Apogee's** (www.apogeedigital.com) **AD-16X and DA-16X** converters are **now shipping**. The converters feature sampling up to 192k, the C777 clocking technology from Apogee's Big Ben, a redesigned power supply and analog section, and direct connectivity to Pro Tools|HD with the X-HD card...**Applied Acoustics Systems** (www.applied-acoustics.com) now offers the **Lounge Lizard EP-2 V. 2.0.1** update, which adds MIDI controller range mapping, improved support for parameter names on the control surface, better performance in RTAS plug-in

format and various bug fixes. The update is free to current EP-2 users, $49 as an upgrade from EP-1 or $199 as a new purchase...Summer's almost gone but until the end of August, you can still take advantage of a great buy-one-get-one-free offer from **IK Multimedia: Any purchase or upgrade of T-RackS or AmpliTube** (Digidesign Bundle or full versions) qualifies you for the other—absolutely free. Visit www.ikmultimedia .com for details...**PowerFX** just released **three collections of CD-ROMs in the Apple Loops Disc Jams** Series optimized for Apple's Soundtrack and GarageBand. Included are *Rock and Pop Trio* (acoustic drums, bass, and lead and rhythm guitars), *Street Stylin'* (urban-themed loops with synth basses, guitars, keys and beats) and *Session Percussion* (percussion loops for any genre). It's $49 from www.power

fx.com...**TC Electronic** has released software **V. 1.11 for Reverb 4000** and a Mac OS X version of the **TC ICON** editor program used to control it. The upgrade includes emulations of popular presets from the M5000 and increases the sampling rate to 96 kHz. The update and ICON editor are available as free downloads at www.tcelectronic.com/ reverb4000...**Steinberg** has updated its Nuendo and Cubase DAWs. **Version 2.2 of Nuendo, Cubase SX and Cubase SL** will offer new remote-control features; Cubase SX and Nuendo also receive three new VST plug-ins. Get the free upgrade at www.steinberg.net...**Spin-Audio's RoomVerb M2** reverb audio plug-in now supports Mac OS X with the release of V. 2.1, available in VST and AudioUnit formats. A free demo version is available at www.spin audio.com...**Propellerhead Software** has announced a special limited-time offer allowing Reason Adapted users to **upgrade to the full Reason 2.5** for $299. Read all about it at www.propellerheads.se. ■

JBL LSR6328P/LSR6312SP Speakers

Powered Monitors and Sub With Room Mode Correction

F ive years ago, *Mix* checked out JBL's award-winning LSR (Linear Spatial Reference) Series monitors. Designed for stereo listening (with or without a matching subwoofer) or full 5.1 monitoring, the LSR Series were by far the best powered near/mid-field speakers JBL had produced. Unfortunately, they were designed around a woven carbon-fiber front baffle, which was beautiful but nearly impossible to build in quantity. After enduring months of back orders, JBL embarked on a new generation of LSRs that takes the approach to studio monitors beyond anything that had been attempted.

The new series addresses the problem of room acoustics caused by the physical properties of the space. This THXpm3®-approved series has four models: the LSR6328P, a biamplified system with 8-inch woofer and 1-inch tweeter; the LSR6312SP powered sub; the LSR6325P biamped with 5.5-inch LF and 1-inch tweeter; and the unpowered three-way LSR6332 with a 12-inch woofer, 5-inch mid and 1-inch tweeter.

Designed to counteract the boomy LF standing waves created by a room's geometry, the LSR6328P and the LSR6312SP feature RMC™ (Room Mode Correction) circuits. An accessory RMC calibration kit provides everything needed to measure the room response, identify the dominant room mode and calibrate system response. The kit includes a test-tone CD and a simple handheld SPL meter to set the integral 22 bands of ⅒th-octave analog parametric filters that notch out offending frequencies.

The RMC is focused on fixing low-frequency (24 Hz to 96 Hz) anomalies, such as reflection-caused room modes that create peaks at the listening position. While the system doesn't affect mids or high frequencies (other than the DIP switches to set up shelving cut/boost), these are the segments of the audio spectrum that are easiest to treat with absorbers, foam, diffusers, etc.—products from dozens of suppliers to handle such problems. The LSR6328P also has boundary-compensation filters for use when the speaker is placed/mounted on a wall, corner or large furniture surface. At 39 pounds, the 16x13x12.75-inch LSR6328P is enough to crimp a weak console meter

bridge. Monitor stands will sound better and allow placements that avoid (or reduce) the effect of console reflections and mechanical resonance.

Beyond the LSR6328P's and LSR6312SP's RMC functions, there are numerous nice new touches. The LSR6328Ps have recessed side handles (near-fields do get moved around a bit) and reinforced mounting points for optional wall-mount hardware. The new electronics offer a cleaner sound with no discernable noise while idling.

The LSR6312SP sub puts a 12-inch Differential Drive® neodymium woofer in a 25x15.5x11.5-inch (WxHxD), front-ported enclosure with 260-watt amp, integrated bass management (for stereo or surround), a direct LFE input, a mono summed out for daisy-chaining another LSR6312SP sub and the onboard RMC circuitry. There are inputs and outputs for connecting your left/center/right (or left/right in stereo) monitors directly with the sub. By connecting a simple SPST footswitch to the sub's ¼-inch LCR bypass jack, the mains can be remotely switched out of the sub's bass-management crossover. Another ¼-inch jack is for an RMC bypass (a small handheld switch is included with the calibration kit), along with four trim-pots for adjusting the RMC parameters (width/frequency/depth/makeup gain). All audio connections use Neutrik combo XLR/TRS (on the inputs) and XLR-Ms on the outs. Inputs are shipped at a -10dBV sensitivity, but are switchable to 0/+4/+8/+12 dBu.

IN THE STUDIO

In addition to the RMC functions, the LSR6328P has continuously variable attenuation. The pot has no detents, making exact level-matching between monitors difficult, but a rear panel 8-position DIP switch next to the pot can defeat the rotary control for selectable sensitivity with precise 0/-4/-8/-12 dB of attenuation. Other DIPs provide subsonic attenuation: two settings for ±1 dB of gentle slope HF shelving, and -1.5/-3/-4.5dB LF boundary compensation. The latter is useful when speakers are placed near walls or corners, but can also adjust for the bass boosting caused by nearby worksurfaces and console tops. In a semi-free field environment (on stands behind the console), the

LSR6328Ps sounded fine with the DIP switches in the flat, no roll-off position.

The LSR28P's 8-inch carbon-fiber cone woofer (driven by a 250W amp) also features JBL's Differential Drive design. Here, two voice coils drive the cone and a third coil acts as an electromagnetic dynamic brake, actively slowing the cone action in extreme SPL situations where over-excursion could destroy the woofer. This combo works great. Miking a 22-inch rock kick with an Audix D6 placed just inside the drum sounded identical in the control room as in the room: a tight, punchy slap with plenty of boom, yet no overshoot.

On the top end, a 120W amp drives the 1-inch composite/titanium-dome tweeter (now mag-shielded!) on an Elliptical Oblate Spheroidal waveguide. Recording HF-intense sources—banjo, piano and 12-string—with a pair of Royer SF-1 ribbons. the top-end character was spot-on: unhyped and natural. On tough percussive sources—chromatic crotales and triangle—transients rang through clear and present. The waveguide offered smooth, controlled dispersion for a medium-wide sweet spot at the listening position. I never had that "Where did the sound go?" experience when reaching for an EQ. The stereo imaging was tight and precise to the point where a 1:00 to 2:00 move on a snare panpot in a multitrack mix provided a meaningful change, while stereo-miked sources—solo and ensemble—had a "you are there" feel.

The LSR6328Ps have the same character as the LSR28P's unhyped, flat reproduction,

Synergy.

At B&H **Pro Audio**, synergy is redefined. The newest technologies in Pro Audio, Video, Editing, Digital Photography, and Lighting are displayed side by side in New York's ultimate Multi-Media Superstore.

This unique convergence of media gives us more ways to help customers find the right solutions for their needs. We provide the most comprehensive and up-to-date information, the latest brand name gear, aggressive pricing and committed, caring customer support.

B&H
PHOTO · VIDEO · PRO AUDIO

B&H Pro Audio

For more about B&H Pro Audio, call us toll free at 800-947-5508, click to bhproaudio.com, or visit us at 420 Ninth Avenue, New York, NY.

Check out all the in-depth product and technology information you can handle in our two-volume, 1,500 page Pro Audio Hardware & Software SourceBook.

with natural high frequencies, well-defined solid bass (with or without the sub) and an unfatigued sound, even after hours of listening. Mixing voices—music cuts and narration—the spectral balance was spot-on, translating well in the critical lower vocal range and with a seamless transition across the 1.7kHz crossover.

The real excitement of the new LSR system comes from the Room Mode Correction functions. Accessing these functions requires the $130 RMC kit (included free with the sub or a pair of LSR6328Ps). The system works fine without the RMC kit, especially if you work in a studio with ideal acoustics. But the RMC goes a long way toward improving the response of less-than-ideal rooms, especially smaller budget spaces.

The half-hour RMC setup routine is easy with step-by-step instructions. The handheld sound level meter is a slick little device with a built-in calibrated mic and a backlit scale with a 16dB range. Calibration simply involved playing a CD of warble tones on ⅙th-octave centers, using the test meter to measure the peak of each tone and marking the results on a chart. The approximate Q of each peak is entered into the width control on the rear of the speakers. Like the width values, the values for center frequency and 0 to -14dB attenuation are also entered into the speaker's RMC controls. The entire process is much simpler to do than to describe.

The first room where I tried the speakers sounded okay at first, but with the RMC, the bass tightened up, the LF mush disappeared and the bass had definition and clarity. This (acoustically) troublesome 11x17-foot project room had a nasty 4dB bump at around 60 Hz and the RMC took it out surgically and cleanly, without killing the bass or destroying the mix. When I moved to a 20x30-foot room with a 15-foot ceiling—a nearly free-field environment—I barely needed any RMC, but few of us ever have the luxury of mixing in nice large rooms. Mixing in much smaller rooms, the RMC removed nasty room bumps, leaving me with a transparent, uncolored mix environment that translated anywhere with the power for high-energy rock or hip hop with room-shaking bass that was solid down to 35 Hz.

So far, so good, but going first class doesn't come cheap. The LSR6328Ps retail at $1,399 each; the LSR6312SP is $1,499; and JBL offers special pair ($2,678) and 5.1 system ($7,775) prices that include RMC. Either way, JBL has delivered a powerful solution to room correction in a system that will set standards for years to come.

JBL Professional, 818/894-8850, www.jblpro.com.

![MIX ONLINE EXTRAS]

Princeton Digital/Eventide Reverb 2016

21st-Century Makeover For a Legacy Processor

Designed by Tony Agnello, the Eventide original SP2016 digital reverb was stellar for its day. The name referred to SP for signal processor and 2016 for its 20kHz bandwidth (40kHz sampling rate) and 16-bit converter resolution. It stood toe-to-toe with other reverbs of its day—from AMS to Lexicon—and quickly became a favorite for many engineers.

Agnello has re-developed the unit with a new look and a new company (Princeton Digital, distributed by Eventide) while maintaining all of the quality that users loved about the original.

Being an SP2016 fan, I was anxious to get my hands on the reissue to see how it compared to my vintage unit. The Reverb 2016 ($2,245 list, below $1,800) is deftly executed in a single rackspace. Balanced XLR and TRS stereo analog I/O is provided, as

enhanced versions. Next to the highly readable, three-figure numeric readout are the System and Save buttons, a rotary for scrolling through the 99 user-assignable presets and a power switch.

The system parameters allow you to access the MIDI dump and load functions, set the MIDI channels and check the software version. More importantly, this is where you can set the unit so it mults the left analog input across both the left and right inputs to the algorithm—a nice feature that is carried over from the original.

OLD AND NEW DUKE IT OUT

For source material, I used vocals, acoustic guitar and drums from a Pro Tools|HD session at 44.1 kHz/24-bit. I listened back through Westlake Lc5.75 monitors powered by a Hafler 9505 amp. Initially, I listened to

units to my favorite settings: EQ at -3 at 250 Hz and -1 at 5k. Once again, it was spot-on—so much so that I found myself pushing the Kill button on the new unit and the Disable button on the old one to reassure myself that I hadn't somehow patched the same output through to the same returns.

The last comparison was on the plate setting. Once again, after adjusting levels and adjusting the parameters to the same settings, it was virtually identical.

The new algorithms are enhanced versions of the three basic algorithms and were outstanding in their own right. I honestly wish Agnello hadn't stopped at just the three main effects, but went on to re-create his multitap delay, gated reverb and RMX Simulator, which are all fantastic. Maybe for a later software upgrade?

is co-ax S/PDIF I/O (44.1/48 kHz downsampled to 40 kHz). The downsampling is intentional to re-create the same sonic character as the original. The back also carries a TRS footswitch jack (for kill and bypass), MIDI I/O, +4/-10 input switch and a standard IEC AC receptacle.

The front has stereo meters, each with four multicolor LEDs, and another as a clip indicator. There are input and output rotary controls with a mono LED indicating when the algorithm only accepts a mono input. Next is a digital-in switch, which kills the input to the algorithm (to isolate the reverb tail) and a relay bypass switch. The seven parameters each have their own dedicated rotary, which is a vast improvement over the search/execute/slide approach of old. Parameters include mix, pre-delay, decay, front/rear, diffusion and low/high EQ. Next to that is the algorithm choice control with a new blue LED indicating if you're into the

the unit by itself using the digital and analog I/O. It performed well in all situations. Like the original, the reverb sits well in the track, but unlike the original, which can be temperamental and a pain to surf through, the interface is wonderful to use.

The fun came when I set up the A/B test between the Reverb 2016 and my original unit. For this test, I took the source material out of the stereo bus so I could hear just the reverb. I ran my source tracks through separate buses to the inputs of both units and put the returns side-by-side for easy A/B comparison. I first compared the room reverb algorithms on both units, with all parameters set for identical reverb times, front-to-back settings and pre-delay. Sonically, both units were dead-on.

Next, I moved on to stereo room. This algorithm opens up more of the interface for tweaking, adding diffusion and two bands of sweepable EQ. I matched both

The new SP2016 gets high marks for execution, style and sound. The interface is very well done: Knobs are tight and windows and LEDs are easily readable from across the room. Sonically, the unit is right on the money. Anyone putting up with the idiosyncrasies of their old unit will gladly upgrade and turn the original into a boat anchor. Although the MIDI implementation and footswitch for kill and bypass is nice, I wish the unit, like the original, had a dedicated remote control, either wired or not.

Sure, it's a one-trick pony, but how often do you use one or two favorite 'verbs on your do-everything box? Other than that, nothing more can be said except, "Tony, you got this one right."

Princeton Digital, dist. by Eventide, 201/641-1200, www.eventide.com.

Kevin Becka is Mix's technical editor.

Crane Song Ibis EQ

Class-A Offering With a Few New Twists

The discrete, Class-A, solid-state Crane Song Ibis ($4,500 list) embodies a new approach to the equalizer's time-honored user interface and feature set. Many of the settings for the Ibis stepped frequency-selection switches are noted only as musical pitches (C#, F, etc.) in lieu of Hz and kHz markings. In addition, each of Ibis' two channels sport independent color controls that add second- and third-harmonic distortion in varying degrees to either the full program or individual bands.

AN OVERVIEW

A quick scan of the 2U, rackmountable, beautiful front panel reveals two independent channels, each offering a low-cut filter and four widely overlapping bands of fully parametric EQ. Bands 1 and 4 can be switched to produce either bell curve or shelving response, while the two middle bands provide only bell curve filters. Each of the four bands provides 12 switched frequency settings by way of a rotary control. Half of these settings are notated as musical pitches, while the other half show both pitch and frequency markings (A = 440 Hz). When depressed, a red button below each frequency control raises all frequency settings in its associated band by a whole musical step, producing 12 additional frequency choices per band. A continuously variable gain control for each band provides up to 12 dB of boost or cut. Yet another continuously variable control for each band adjusts the bandwidth of the parametric filter's response from 0.2 to four octaves. The bandwidth controls do not have an effect on shelving filters.

Each channel's low-cut filter offers a choice of 11 fixed corner frequencies, ranging from 20 to 150 Hz (their corresponding musical pitches not noted) on a rotary control. A bypass setting is also provided in the control's fully counterclockwise position. The low-cut filters slope can be switched to provide either a 12- or 24dB-per-octave roll-off.

Ibis' analog color processing is different from that offered in the excellent all-digital Crane Song HEDD 192. A stepped, color source control for each channel selects which single frequency band will have color processing (second and third harmonics) added to its signal. Alternatively, color processing can be added to the program's full bandwidth or bypassed completely. A continuously variable color control for each channel adjusts the amount of harmonics added to the original signal. When adding color in an isolated band, the amount of harmonics added is proportional to the amount of EQ boost or cut applied to that band. (When EQ cut is applied in a band, the color control adds harmonics in the opposite polarity relative to that of the program material.) Happily, you can add color to the program's *full* bandwidth without applying boost or cut in any bands.

Balanced, floating cross-coupled XLRs (pin 2 hot) provide I/O connections on the rear panel. Each channel also sports a sidechain insert that is placed after the filters output, but before the sum of the filters. By inserting a compressor in the sidechain path, you could, for example, compress high frequencies when the EQ'd signal gets too bright. The sidechains' DB15 connectors require custom cables.

Each of Ibis' two channels can be independently bypassed, but there are no bypass switches provided for each band. Master output gain controls are also not provided, making unbiased A/B comparisons between unprocessed and equalized material problematic and downstream gain staging a hassle in certain applications. Furthermore, only Ibis' frequency and color source controls have detents. (A mastering version, which lists for $8,000, provides stepped bandwidth and boost/cut controls, the latter adjustable over a ±6dB range in mostly 0.5dB increments.) Aside from a large power lamp, Ibis' front panel does not have status indicators; no metering is provided on the unit. At the time of this writing, an owner's manual was not available.

COLOR MY WORLD

Applied in moderation to individual synth, electric guitar and bass tracks in rock and pop productions, Ibis' color controls added flattering grit. The ability to confine the addition of harmonics to a particular frequency band was a major plus. For example, I liked that I could deliberately add harmonics to only the low band on bass guitar, preventing the unwanted accentuation of higher frequencies.

Added generously to the full bandwidth of a snare drum track, the color option added flattering size and sizzle but rounded the instrument's transient attack. I found it best, therefore, to feed the Ibis percussive material via an effect send or mult, preserving the dry signal, in applications where heavy color processing was desired.

Adding color only to the lowest band of a full mix resulted in a very subtle compression effect on the bottom end. I didn't like adding color processing to the full bandwidth of a mix. To my ears, full-band color processing degraded the pristine elements of a mix by adding dirty-sounding distortion.

Ibis' main strength lies not in its bells and whistles, but in its high-quality equalization. The EQ sounded clean, uncolored and very responsive. Considering the unit's steep price tag, however, I'd like to see the Ibis offer more mission-critical features such as master output gain controls and independent bypasses for each band. But if musical note markings on equalizer filters present a more intuitive way for you to work, Ibis may be right for you.

Crane Song, 715/398-3627, www.crane song.com. ∎

Tannoy Ellipse 10 Studio Monitors

Forward-Thinking Design in a Functional Speaker

Tannoy's Ellipse 10 monitors make bold statements on many levels beyond their futuristic-looking yet functional cabinet styling. The three-way powered monitors feature Tannoy's Dual Concentric driver, a company mainstay since 1947, and the time-aligned Wideband Super-Tweeter that extends the high-frequency response beyond 50 kHz. The monitors' elliptical shape is said to diffuse diffraction and reflections common in rectangular cabinets.

The Ellipse Series comes in both 8-inch and 10-inch versions, with or without DSP. (Price with DSP is $5,500 a pair; without is $3,550.) Tannoy's DSP, titled IDP for Interactive Digital Programming, uses TC Electronic's speaker DSP and IDP software to control the crossover's operation, add equalization for room correction and apply bass management for surround sound installations. My evaluation speakers were Ellipse 10s without DSP.

INSIDE THE ELLIPSE

The Ellipse 10's primary driver uses a dual-magnet assembly for the center-mounted tweeter and concentric low/midrange unit. The aluminum-alloy dome tweeter has a Tulip WaveGuide horn that is appended by a molded polypropylene cone, which simultaneously reproduces the lower frequencies from the long-throw low/mid driver. Time alignment between tweeter and the low/mid driver is physically locked in all three axes with little need for electronic manipulation. Frequency response for this pair is 30 to 14k Hz with crossover at 1.7 kHz. Both the LF driver and HF tweeter use identical 200-watt discrete MOSFET amplifiers.

The SuperTweeter is mounted atop the cabinet and time-aligned to the primary driver by its physical positioning and through the 14kHz highpass crossover filter's design. This driver has a bandwidth of 50 kHz, uses an aluminum-alloy and carbon-fiber dome, and is driven by a 30W IC amplifier. Why 50 kHz? Spectral measurements show that musical sources and speech sibilance contain considerable sonic energy above 20 kHz. Studies show that humans can detect upper harmonics, even when they are not perceived as sound.

The SuperTweeter works like the addition of a subwoofer. Subwoofers lower the system's low-frequency roll-off and reduce phase error in low-frequency reproduction. Likewise, the SuperTweeter reduces the amount of the loudspeaker's high-frequency phase error by shifting the tweeter's roll-off beyond 20 kHz. The fact that the speaker system's high-frequency phase error is reduced and all of the upper harmonics are reproduced makes for a superior listening experience.

The dual-ported Ellipse enclosures weigh more than 46 pounds each and measure 21¼ inches wide by 16¾ inches high, including the SuperTweeter. They are made from laminated birch with MDF front and rear panels, and rest on rubber pedestals.

The rear panel's aluminum back plate integrates the amplifier/power supply heat sink, XLR input connector (no ¼-inch or RCA jacks), +4dB/-10dBV sensitivity control and controls for a 3-band equalizer before the crossover. The LF control goes ±3 dB at 45 Hz, and the speakers come with a set of foam plugs to reduce bass below 80 Hz by closing up either or both of the two bass reflex ports. The Mid control is a broad peak of ±2 dB at 1.4 kHz, while the HF shelving control provides ±3 dB at 25 kHz—so broad that it ends up being up to ±1 dB at 4.5 kHz. I did not use the plugs or change any of the controls as I had the speakers in an open space, away from corners, above the console and in a fairly dead room with minimum acoustic treatment. It sounds wonderful to fully crank up the HF, lending an openness and "air" to the overall sound.

ACCURATE FROM TOP TO BOTTOM

The Ellipses reminded me a lot of the Tannoy 800As I use to mix on, but much better. I first listened to finished CDs and "mixes in progress" at home and then down at the studio, where I put them to work mixing multitrack sessions. My test with any new nearfields starts with establishing track size and gauging overall top and bottom qualities at loud levels on the studio's main monitors. After I had a rough track mix going, I switched down to the Tannoys to hear what would happen. The Ellipse 10s passed my test: All

tonal perspectives stayed the same. There was no increased midrange, no part of the mix disappeared and the bottom end had scaled down appropriately.

After a few sessions, the Ellipses were detailed-sounding and minimally fatiguing, even while monitoring overly compressed source material. With their extra resolution, I could hear sound differences much easier between two identical microphones or the fidelity change from one compressor to another. What was barely perceptible before is now fully perceptible, which I attribute to the on-axis concentric design and better high-frequency phase coherency helped by the SuperTweeter. However, not being able to disconnect the SuperTweeter prevented me from fully confirming this.

There's a big difference in high-frequency dispersion between sitting directly in the equilateral sweet spot and when standing up. Vertical dispersion seems a little beam-like, so I recommend placing the speakers higher than your console's meter bridge and tilting them down slightly at the sitting position. Lateral dispersion is very good: You can still hear both speakers well, even though you are much closer to one or the other.

The Ellipses became most valuable for cross-checking my work compared to the multidriver speakers found in most studios. The concentric design is a wholly unique analytical tool for critical listening and evaluation of any audio source. I love them!

Tannoy. 519/745-1158, www.tannoy.com.

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

World Radio History

Digidesign DigiDelivery Network System

Hardware-Based Data Exchange for Audio and Video

Although many people (including myself) never saw the point of musical collaboration via the now-defunct Rocket Network, in retrospect, it's obvious that this early attempt at collaborative workflow was the software-prototype paradigm for DigiDelivery, Digidesign's new appliance for network file exchange. The hardware component comes in two configurations: Digidesign Serv|GT ($9,995) and Digidesign Serv|LT ($3,295). Both versions require one rackspace, and both Ethernet-connected server appliances ship preconfigured with server software for ease of setup. There's also a client application that may prove to be the primary selling point for studio owners who have struggled for years to "idiot-proof" FTP transfer and Web access for client approval and sign-off for project data.

DigiDelivery features drag-and-drop delivery, automatic e-mail notification, Web-based administration, secure storage and transmission, and comparatively fast data transfers. Any kind of file may be losslessly compressed, encrypted for transfer (with 128-bit encryption) and decrypted by the target recipient.

Pro Tools users will especially appreciate that the transmitted delivery retains the folder hierarchy of the original system. If the original project was distributed across multiple drives, then the drives are represented in separate folders in the delivery so that the original disk allocation is mirrored for the recipient. Also, if the original session was not in the session folder (for example, if it's on the original user's desktop), then DigiDelivery creates an alias, or shortcut, for the session and places it at the top of the delivery folder.

REQUIREMENTS AND CONFIGURING

DigiDelivery client software works with Windows XP SP1 (Home and Pro) and Mac OS X Version 10.2 or later. For Mac OS 9.1 or higher, you'll need to have CarbonLib 1.6. The Windows XP Client "appears to work" on Windows 2000, but according to
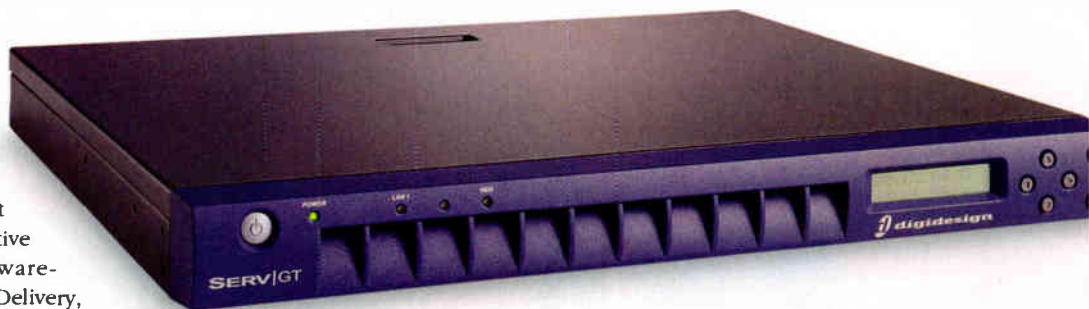
Digidesign, a fully qualified Windows 2000 client will be available by the time you read this.

One benefit of the new system is that you can send a delivery without owning the DigiDelivery appliance; you only need an account on someone else's server. DigiDelivery does not require a subscription to a specialized network (such as the old Rocket Network) and you don't need an account on a DigiDelivery appliance to receive a delivery.

Of course, owning the Digidesign Serv|GT or Digidesign Serv|LT is the only way to go if you want faster transfers, the ability to customize the system, automated reporting and customer support. Once the system is configured for your ISP or personal TX line, it's simple to use, but getting to that point may involve a few calls to your ISP.

First, you'll need a static or fixed IP address. That's usually easy to acquire, but there may be an extra charge. If your ISP has an acceptable use policy (AUP) regarding servers (meaning you can't have one), then you'll either need to find another ISP or take the risk that one day you'll try to send that important session to a client in Hong Kong only to find that your friendly ISP has decided to block ports. Outbound ports should normally not be blocked for static IP addresses, but you'll need to verify this with your ISP.

You may need to pay an extra fee if your ISP restricts bandwidth to daily limits. Also, if you're a cable modem user, then you may not be able to obtain the necessary bandwidth for upload to make large transfers feasible. The bottom line: If you want to send gigabytes of files over the In-

ternet in a timely fashion, nothing beats having your very own T4 line running at 277.76 Mbps.

On my business cable setup, which supports upload at 356 Kbps and download at 4 Mbps, a 100-meg file took 43 minutes to transfer. Not bad if you need to send an album's worth of material halfway around the world, but sending a 36-gigabyte Pro Tools session to a co-worker on a movie soundtrack could take more than a week.

Fortunately, like network capacity, the DigiDelivery system is scalable. If your needs are client approvals for short commercials and stereo masters, then you'll find the Digidesign Serv|LT will suit your requirements. Serv|LT uses 1000 Base-T (Gbit) Ethernet with an 80GB internal drive, 20 pending deliveries, one standard account and unlimited guest accounts.

The standard/guest discrimination is used to prevent hijacking and sabotaging the server. Those with a standard account can send files to anyone, so those files should be limited to administrators and people with high security ranking. Guest accounts can only send to standard accounts, not to each other. Give these to your clients and contractors.

I always have a queasy feeling when someone gives me access to his/her FTP server and I see a lot of folders without password protection: Should I see if they open and warn the FTP owner, or should I leave them alone and let the owner stay unprotected? With a guest account, your client won't have to make a moral choice when you need an approval. All they need is an e-mail address.

Larger facilities will want the added capacity of the Serv|GT, which includes 1000

Base-T (Gbit) Ethernet, a 500GB internal drive, unlimited pending deliveries, unlimited standard accounts and unlimited guest accounts.

DIGIDELIVERY IN ACTION

I was skeptical about the usefulness of DigiDelivery until I received a delivery from a friend via e-mail. I simply clicked on a link, let the client's software download and clicked on the encrypted key to receive my "package." I thought of the phone calls I had made to clients to help them wind their way through the FTP jungle. It was obvious that DigiDelivery had the potential to save me hours of support time, not to mention feeling irritated and dismayed when carefully given advice doesn't work.

With DigiDelivery, the sender logs on to the server with his or her account, drags files and folders onto the Send Wizard, enters up to 100 recipient e-mail addresses (with an optional message) and selects Next. That's it. DigiDelivery gathers the files, encrypts them and sends them to the recipient. They do not need an account—just an e-mail address— to receive a delivery.

The only problem I ran into when setting up the Serv|GT was that the documentation for the setup section distinguishing between WANs and LANs was unclear. I mentioned this to the Digidesign support crew and the documentation was scheduled to be updated by press time.

Both units ship with an internal CD-ROM reader and several "gozintas and gozouttas" that are not implemented at this time. DIN jacks, monitor port, serial port, parallel and USBs currently do not function and Digidesign warns against attempting to use them at the risk of damaging the unit.

WHO NEEDS ONE?

If you've grown weary of hand-holding clients through the FTP jungle, if your clients are halfway around the world or if you just want to concentrate more on audio and less on network administration, then you'll be happy to add either the Digidesign Serv|GT and Digidesign Serv|LT to your machine room. The stress reduction alone is worth the price. You may have to pay for extra bandwidth, but that's the cost of doing business when you want client satisfaction and the confidence that your studio can deliver product in a timely fashion.

Digidesign, 650/731-6300, www.digidesign.com. ∎

K.K. Proffitt is the owner of JamSync, a multichannel surround mixing, mastering, DVD authoring and encoding facility in Nashville.

Electro-Harmonix NY-2A Tube Compressor

Retro Meets Modern With a Dash of Audiophile Quality

The Electro-Harmonix NY-2A vacuum tube compressor/limiter is impressive. Inside this $2,995 stereo unit is a mix of modern, retro and audiophile parts, some of which I've never seen before (such as TO-220-style power resistors mounted on heat sinks). If this product seems a stretch from a stomp box company that dates back to the Hendrix era, here are the connections. Electro-Harmonix was the brainchild of Mike Matthews, as is the parent company—New Sensor Corporation—the importer/owner of the EH, Sovtek and Svetlana brands of Russian-made vacuum tubes.

The three-rackspace front panel is clearly laid out with three variations on the photo-resistive theme. Traditional opto hardware converts sound to light using an electroluminescent panel driving the photo-resistive leg of a variable attenuator. The designer, J.C. Morrison, chose different attack and decay characteristics using LED and incandescent lamp drivers.

The lamp produces a unique range of colors depending on the amount of gain reduction. By centering my tests within a 6dB gain-reduction processing window, I could audition each "opto option" simply by rotating the electroluminescent-LED-incandescent switch. More than 6 dB of gain reduction and the LED moved beyond peak limiting and into compression where it is not well-suited. Electroluminescent was the most consistent no matter how much gain reduction was used.

Also on the front panel are squash and attack switches that, respectively, modify the electroluminescent and incandescent response. I kept these switches off most of the time, preferring to learn the native characteristics of each opto. Electroluminescent provides an obviously familiar blend of compression and limiting with minimal artifacts. LED is essentially a peak limiter, and as such, must be used sparingly because the gain reduction meter is not as fast as the opto. Incandescent has a slow, lagging attack time because it takes a while for the filament to glow, but then—snap!—it bites down and makes a kick drum pop out of a mix. Once the glow is gone, up comes the ambience until the threshold is triggered again.

There are three rotary controls (pre-gain,

compress and post-gain) and no attack or release controls. Simple, just as optical should be.

The passive components are all first-rate. Low-noise, metal film resistors are standard in most gear, but multicaps for interstage coupling add the audiophile's touch. The 105° centigrade electrolytic caps used for power supply de-coupling will withstand the heat this unit generates. (Multicaps are as the name implies: large values manufactured from up to 10 smaller value caps. High-temp electrolytic caps last longer in hot spaces than conventional caps.) Add to this the highly regarded Lundahl I/O transformers.

There are eight vacuum tubes—four per channel, three of which are in the signal path: a dual-triode on the front end, a single triode and a dual-triode for the output stage. All are Russian military-grade tubes. The fourth tube is the EM80 "magic eye" front panel output indicator, though its speed might be better suited to gain reduction duty when in LED mode. (The VU meter can read gain reduction or output.)

I primarily listened to three music genres through the NY-2A; minimally processed acoustic guitar–based Americana and unprocessed jazz worked best with electroluminescent processing. The LED did a nice job on some early-'80s rock, R&B and grunge, transforming an exaggerated low-end punch into a more modern sound. Incandescent will always be worth a try: It's unlike anything you've ever heard, and yet it reminded me of a Neve 2254 as it seemed to enhance the kick drum. It might be well suited to lifeless raw kick tracks.

I modified this unit after using it for a day because each opto has a radically different threshold, a discrepancy that required two hands—one to reset the compress control, the other to select an opto. (The LED is most sensitive but should be the least sensitive.) My goal is the same as any A/B/X compar-

ison process—to minimize any level discrepancies in order to judge only the actual differences. While this seemed annoying to me, EHX believes that the radical thresholds enhance each opto's differences. However, I am fully capable of tickling for nuance as well as abusing for effect. I just want a "level" playing field to do that.

But the strength of the NY-2A is its sound. It delivers 23dBu out at about 0.5% distortion and 20 dBm into a 600-ohm load. (This unit must be terminated.) Signal-to-noise ballparks around 80 dB, depending on settings. This figure could probably be improved if the power supply was separately packaged. The Russian filaments draw more current than conventional tubes, so the power transformer is massive. Distortion at more nominal levels is closer to 0.1% with no processing, typical for a circuit design that does not have negative feedback. This allows a broad avenue of color between linear and clipping. When the unit is driven hard, the sound is more of a midrange grunge than that "cut glass" sound of op amps.

The NY-2A's sound is 3-D. It has the spatial depth and fatness associated with vintage tube gear and their lovely transformers. Of course, there are many approaches to retro gear, from exact replicas to exciting hybrids. The NY-2A adheres to an audiophile discipline: using simple plate-loaded triode circuits (no cathode followers) and ultra-high quality (if not esoteric) components. Again, its simplicity is a plus. In three clicks, you'll know if it can do the job or not. It is a compressor/limiter with a wide range of what I like to call "nuance headroom." If you're looking for an optical processor, the NY-2A is unique and tasty, with three flavors in one. No other opto-box can make that claim.

Electro-Harmonix, 718/937-8300, www. ehx.com. ■

Voxengo Pristine Space Reverb Plug-In

Affordable, 8-Channel Native Convolution Effects

Voxengo's Pristine Space (MSRP: $139) is an 8-channel, native PC VST convolution reverb plug-in with extensive routing capabilities and several latency options that allow full operation in nearly any system. Instead of using proprietary formats like other impulse reverbs, Pristine Space uses single stereo (or mono) reverb impulse samples recorded in standard .WAV format.

SMOOTH OPERATOR

After downloading Version 1.1 and impulses, I installed Pristine Space in my Cubase SX 2 home system and a large Nuendo system at the studio with no problems. These are demos, so when you purchase, a registration number is provided. The impulses are archived as RAR files and were made using Voxengo's Impulse Modeler program; check it out at www.voxengo.com /imodeler.

Pristine Space opens up in a large GUI divided in half horizontally. The upper half shows a wave representation of the reverb convoluted from an impulse and loaded in the currently selected slot. There are eight separate slots available to hold impulses; just think of slots as banks or folders of impulse files.

The upper portion of Pristine Space's GUI has knobs for length and offset to cut the loaded impulse file or reverb decay time, gain for reverb level and delay for setting pre-delay time. The Reverse button reverses the impulse for a backward reverb, and A-Gain, or auto-gain, maintains the same reverb level when loading and auditioning different impulses.

Rather than offer complex and difficult ways to use impulse transformation and editing, Pristine Space allows for more musical, envelope-driven nondestructive envelope editing. Directly above the slot-selector buttons are six envelope-enable buttons. You can superimpose any or all six different envelopes over the length of the reverb's decay time by clicking and dragging a blue-colored break-point curve. The options are volume, stereo width and stereo pan, low-pass and highpass filters and an equalizer.

Any envelope curve can be copied, linked to or used by another envelope, and envelopes are stored within a preset with the slot configuration and impulse files used. You can load, copy and A/B presets. Presets also store information for routing and mixing in Pristine Space.

The bottom half of the GUI has an 8-channel mixer with solo, mute and wet/dry controls for each channel. All three controls can be linked together if you are using many slots/impulses for the same giant reverb. Inputs and outputs 1 through 8 are designated here. Pristine Space is bundled with seven mixer-routing template presets with no impulses or envelopes associated with them.

LOADING UP MY RIG

I would suggest using at least a 1GHz PC or faster to get the most out of Pristine Space; my 800MHz Celeron PC ran four convolutions at low-quality settings with boggy operation and little CPU resources left. Latency and quality are trade-offs that you can temporarily change at any time to facilitate smoother system operation during other CPU-intensive times such as recording. On the studio's 3GHz monster, it flies with no problems while running multiple convolutions at the highest-quality settings and many tracks and plugs.

I loaded slots one through four with four different impulses and ran two stereo reverbs in parallel for a very luxurious reverb sound. I also configured one reverb to drive another by just selecting a convolution instead of a send input for the third slot. Now that's one dense, thick reverb! With the facility to run four stereo reverbs at the same time, my goal was one instantiation of Pristine Space for all of the reverb needs of my mix.

Cubase SX 2 and Nuendo do not provide individual sends to two or more reverbs from the same channel or multiple return channels. Such capabilities might
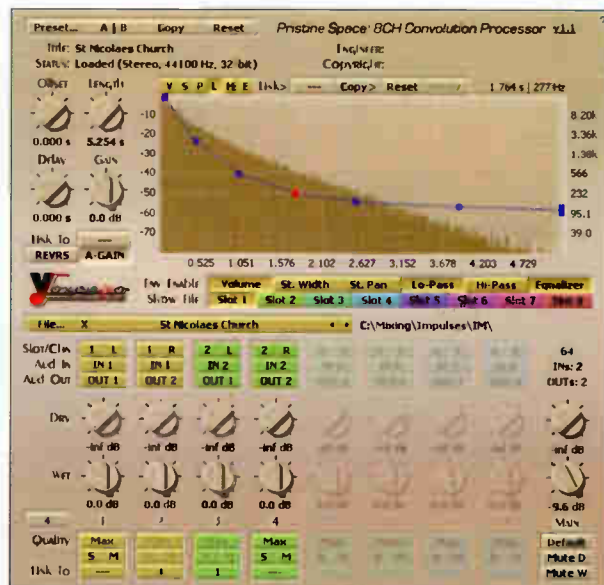
Voxengo Pristine Space's presets model acoustic environments such as St. Nicolaes Church, above.

be included in the next version of these programs, but for now, Pristine Space can only be used as an 8-channel surround reverb if you set it up as an insert effect on a surround channel or on a master bus. Voxengo says that Pristine Space should work in any possible multichannel configuration such as Audio Mulch, which supports routing for four separate stereo reverbs. For more information, check out Audio Mulch's Website at www.audiomulch.com.

To make your own impulses is a fun feature that will find favor with sound designers everywhere. For example, I struck two drumsticks in my bathroom and recorded it in stereo. I removed the initial hit (but you don't have to) and trimmed the reverb tail to about one second of audio. Load this into Pristine Space and you've got the sound of that bathroom for a reverb. I also tried a single snare hit that, due to its short duration and spectral content, ended up sounding like a tonality or coloration but not a reverb. The possibilities go on forever. I'm convinced that this new wave of processing—brought on by faster, more powerful computers—is here to stay. Jump into Voxengo's Pristine Space—you'll love it!

Voxengo, www.voxengo.com. Free impulses can be downloaded at www.voxengo.com/impulses/. ∎

Snapshot Product Reviews

NEUMANN BCM 104
Side-Address
Broadcast Mic

The death grip that the RE20 and RE27 N/D have on the radio and TV station announce market is legendary. Neumann's condenser BCM 104 ($999.99) is the latest mic in a long line of RE20 challengers. While still applying the physics behind the form, the Neumann BCM 104 looks like no other mic on the planet.

The BCM 104 is a side-address, large-diameter true condenser with a remarkably low 7dBA self-noise. The capsule has a single front diaphragm and an elaborate rear porting system. As with the TLM 103, the capsule-mounting stalk attaches to the circular printed circuit board (PCB). The PCB is mechanically decoupled from the body by a rubber ring that holds the PCB in place.

The BCM 104's integral suspension mount takes up less space than a traditional spider mount and doesn't cost extra. It accepts a standard ⅜-inch threaded pipe and is not adjustable. The head grille unscrews very easily for quick cleaning and reattaches by lining up a spring-loaded bearing mounted in the body of the mic into a small detent in the head grille.

Around the top edge of the body, four small slots receive the four corners of the internal metal-mesh pop filter. The pop filter screens out all but extreme plosives and can be removed for cleaning by squeezing the mesh supports from front to back and carefully lifting the screen from around the capsule.

Switches for engaging a 14dB pad and highpass filter are accessible by removing a small screw that holds the male XLR in place. A slight outward tug pulls the three-prong connector into view. On its backside is a small circuit board where the switches are mounted.

Even with the highpass filter disengaged, the BCM 104 has a milder LF response than the TLM 103. I liked the low end without engaging the highpass filter, but it might be useful for people with exceptionally bass-y voices. The BCM 104 doesn't reject sound entering the open end of the head grille but it rejects sound coming from the other end of the mic. If you have lots of highly reflective counter top and a relatively absorptive and diffusive ceiling, you might get better results by mounting the mic upside down.

The BCM 104 exhibited excellent high-end detail. This may be a liability in an extremely noisy and highly reflective environment, especially if an announcer is speaking extremely loud. I found that with a moderately projected DJ voice, I could work with my nose touching the edge of the head grille. Even as close as that, I wasn't quite filling up my headphones with low end the way I like, but with a gentle touch of EQ (+1.5 dB at 120 Hz), I was ready to rock.

In addition to looking the part of a 21st-century mic, the BCM 104's impressive specs and sound should please any discerning audio pro.

Neumann, 860/434-5220, www.neumann usa.com.

—*Ty Ford*

ohms), BNC unbalanced (75 ohms, capable of being converted to co-ax with the included adapter) and Toslink optical. Each of the digital inputs can accept AES/EBU- or S/PDIF-formatted 24-bit audio. The XLR and BNC inputs accommodate any sampling frequency from 28 to 195 kHz, while the Toslink input works reliably up to 96 kHz.

The rear panel also features unbalanced -10dBV RCA and balanced +4dBu XLR analog outs, and internal 10/20/30dB jumpers that can pad the XLR outs to work with high-sensitivity gear. A three-way output level switch on the rear panel enables a stepped, variable-gain control knob on the front panel to adjust analog output levels at the XLR and RCA outputs. This knob also controls output levels for two front panel ¼-inch headphone jacks at all times. Monitoring via the DAC-1 while mixing, I found that padding the unit's output gave the variable gain control a better (more gradual) taper at low SPLs.

Setting the DAC-1's output level switch at its center position mutes the XLR and RCA outputs for headphone-only listening. Set to Calibrated mode, the output level switch delegates level control for XLR and RCA outputs to separate left- and right-channel calibration trims on the rear panel. These 10-turn trims allow very fine adjustment of output levels over a 20dB range (i.e., to +29 dBu at XLR outputs with 0dBFS input). The DAC-1 lacks level meters, but front panel status LEDs alert the user when the digital signal is absent or

BENCHMARK DAC-1
2-Channel 24-Bit D/A Converter

The highly versatile Benchmark DAC-1 is equally at home in recording, mixing and monitoring applications. The half-rack unit's rear panel sports three flavors of switch-selectable digital inputs: XLR balanced (110

format incompatibilities arise.

The DAC-1 upsamples the digital input and then uses sample rate conversion to isolate the D/As and allows the unit to sync to its internal crystal. This design reduces jitter to immeasurable levels. The unit sounds very open in the low midrange band and

produces a very tightly focused bass. Compared to the D/As in a MOTU HD192 (which costs only a fraction of the DAC-1's selling price on a per-channel basis), the DAC-1 offers decidedly superior depth and clarity. The converters in Apogee's DA-16X, on the other hand, sound a little more fluid, warmer, sweeter and three-dimensional as compared to those in the DAC-1. As highly competitive as the Apogee unit may be on a per-channel cost basis, it carries a much higher overall price tag and lacks the DAC-1's functionality for use in the monitoring path. For $975 list, the DAC-1 offers very high-quality D/A conversion in a variety of applications.

Benchmark Media Systems, 315/437-6300, www.benchmarkmedia.com.

—Michael Cooper
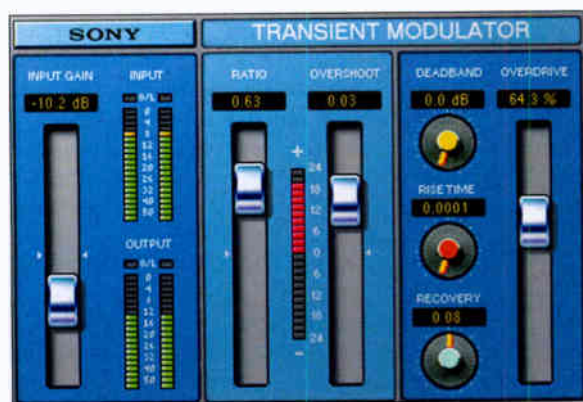
SONY TRANSIENT MODULATOR
Envelope-Shaping Plug-In

Transient modification is not a new concept: Engineers have shaped the transient response of an instrument's waveform since the introduction of attack/release controls on compressors. What *is* new is the proliferation of hardware and software devices that take that concept and control to new heights.

The latest release in the Sony Oxford plug-in series, Transient Modulator allows a signal's dynamic level to be modified by adjusting the relationship of transients within the program. This can be approached in two ways: to emphasize the transient events in the program or de-emphasize the same events in the program in relation to the rest of the material.

The appearance of the Transient Modulator is standard-issue Oxford plug-in blue with clearly marked parameter controls. The usual suspects—gain control, threshold control, input switch and I/O meters—all function as you might expect. The other controls are specific to Trans Mod's operation. The Deadband control manages the range in

which transient variations are ignored. A Ratio control monitors the overall effect in regard to raising or lowering the transients within the program. The Effect meter displays the peak overall gain/loss of transients. The Overshoot control determines the period of time the transients will be modified; i.e., a short overshoot period will affect only the leading edge of a transient. Recovery controls the process in relation to long-term program changes. An Overdrive control provides harmonic enhancement that can be added to the output signal. Rise Time gives control over the response of transient detection, letting the user either ignore the shortest transients or affect them all equally.

The positive ratio function can dramatically increase the gain of a signal. For example, when the ratio control is set to +1, a drum attack that has a peak of 10dB gain will produce a level of 20 dB at the output. Proceed with caution.

Using the plug-in on some final mastered mixes, I chose a variety of programs: some dynamic and musical, some squashed and darn-right ugly. In every case, I could make the mix seem more present while minimally effecting the overall program. I then applied Trans Mod to various drum loops. This is a tremendous tool for managing the leading edge of individual instruments within the loop that I had battled in past mixing situations.

Like other hardware or software products of this nature, there is a side effect: As you alter the rise time of an instrument, you can unknowingly introduce subtle changes in timing due to a shift of where the apparent peak of the waveform occurs. This may at first seem insignificant but could easily affect a track's "groove" factor, especially when dealing with percussive elements.

The Sony Transient Modulator proved itself very useful in the fix-it and creative categories. It's definitely going in my plug-in tool belt.

The Transient Modulator is supported by Pro Tools LE ($230), Pro Tools TDM ($450) and is HD, HD Accel and Mix-compatible.

Sony Pro Audio, 201/930-1000, www.sony.com/proaudio.

—David Rideau

TRILLIUM LANE LABS EVERYPHASE TL
Retro Effects Plug-In for Pro Tools

EveryPhase TL from Trillium Lane Labs is an analog-modeled phaser plug-in designed to produce classic and contemporary phase-shift effects. All tests were run under Pro Tools 6 LE on a dual 1GHz G4.

I first used it on a slightly distorted rhythm guitar playing eighth notes. The factory default that came up when I initiated EveryPhase was wonderful: a subtle, slow sweep reminiscent of something you might hear on a Pink Floyd record. Modulation can be driven via LFO, the envelope of the track being processed or, on TDM systems, any external audio signal. When set to Envelope, modulation is controlled by an envelope detector that analyzes the sound's envelope and triggers the LFO. A threshold slider adjusts sensitivity of the envelope detector, while additional sliders adjust its attack and release. This makes for a unique effect, quite different from LFO modulation, which provides a steady, rhythmic phase shift. Speed of the LFO may be set manually or synched to MIDI clock at note values ranging from a 1/16th note to four measures.

Next, I tried it on a hi-hat track in a dance tune with excellent results. EveryPhase provided subtle animation that added life to the track without sounding overly processed. Modulation width is displayed as a shaded section of a black-bar meter, which was difficult to see.

EveryPhase's Manual control lets you select the frequency range being shifted, while Width determines the bandwidth of that range. The Stage control varies the number of frequency notches (two to 18) being shifted; using a higher number of stages generally makes the processing more noticeable. The Depth slider adjusts the severity of phase shift in positive (opposite

phase) and negative (in-phase) directions; a setting of zero results in no phase shift. Resonant filter and feedback controls add a ton of interesting sonic possibilities. The Hollow Lead factory preset takes advantage of these, suggesting the sound of an envelope follower whereby a loud sound causes a resonant swish on the attack, but soft

sounds are unaffected by resonance.

The stereo program was fantastic on synth piano sounds. I started with the factory default on a mono Rhodes track and bumped up the width. The movement made the synth patch totally convincing and added a startling amount of dimensionality.

The factory presets are excellent. Standouts include Egg Beater (adding a subtle distortion to electric guitar) and Talking Guitar, which sounds like a talkbox. Regardless of whether you use the factory presets or write your own, EveryPhase TL is a useful and musical addition to your plug-in arsenal.

EveryPhase TL is compatible with Pro Tools TDM (HD Accel, HD, Mix) and RTAS for Mac OS 9 and OS X and Windows XP at sample rates up to 192 kHz. A demo of EveryPhase TL may be downloaded from the Trillium Lane Labs Website and purchased for $249.

Trillium Lane Labs, www.tllabs.com.

—*Steve La Cerra*

Drummer Frank Basile can liven your track with his performance.

LIVE STUDIO DRUMS
"Instant" Session Player

Loops are popular with producers, yet many musicians prefer a live drummer on their sessions, including songwriters working with tight budgets. With this in mind, Frank Basile, owner of Smart Loops, offers a service called Live Studio Drums (LSD). For a ridiculously low $69, songwriters anywhere in the world can get his drum performance added to a track.

Using a combination of the Internet, the telephone and UPS, here's how Live Studio Drums works: From the company's Website, check out the LSD demos. If you like what you hear, you can start a session by filling out a form with details about your song, including the sample rate and bit depth you need the files delivered in and whether you want Basile to add effects or give you splits that are uncompressed and without EQ. Basile will even take phone calls to discuss your needs in detail.

You can then specify whether you want tracks delivered via the Internet or on CD, pay by credit card and upload a guide MP3 of your song for Basile to work from. You receive an approval MP3 from him in three to 10 business days. If the performance is acceptable, then Basile delivers your splits on CD via UPS or on the Internet from a secure FTP download site. If you refuse the initial performance, a second take can be recorded for an additional $25.

Basile's studio centers around a Sonar 3 workstation and Yamaha 01V96 mixer. A Pearl drums endorsee, his kits are recorded in a 15x25-foot space using a variety of Audix, Shure, Sennheiser and Audio-Technica mics.

The Internet is tailor-made for startup companies like LSD. Listen to some LSD demos and decide if Basile's drumming style is for you. If you want to add live drums to a track, it's hard to see the downside of dropping $69 to find out if Basile's got what it takes to make your record come to life.

Live Studio Drums, www.livestudiodrums.com.

—*Gary Eskow* ■

Resource.

B&H **Pro Audio** is your resource for brand name gear, in-depth information, and comprehensive product support. On site at our newly expanded New York Superstore, come test drive the latest in microphones, studio monitors, and desktop audio technologies. Online, visit our interactive Web site, bhproaudio.com.

B&H Pro Audio

For more about B&H Pro Audio, call us toll free at 800-947-5508, click to bhproaudio.com, or visit us at 420 Ninth Avenue, New York, NY.

Check out all the in-depth product and technology information you can handle in our two-volume, 1,500 page Pro Audio Hardware & Software SourceBook.

BY EDDIE CILETTI

Choosing Op Amps

A Whole New World of Plug-Ins?

There are no black-and-white answers to upgrade questions. Even identical circuits behave differently, depending on the board layout and components used. To paraphrase an old saying, learn to fish and you'll answer your own questions. I encourage experimentation, but you really need an oscilloscope to keep an eye on things.

For simplicity, op amps can be distilled into three application-specific categories: high-gain preamp, general-purpose buffer and line driver (output amp). Op amps aren't supposed to have color; the output signal should be the same as the input signal with the least amount of additional artifacts. All op amps are *designed* to have low distortion, low noise and wide bandwidth; however, some turn out better than others.

How important is slew rate? Shown at top is an oscillator's 1kHz square wave output. The bottom wave shows the already obvious "vertical" distortion from a slow 2V/µs op amp; in this case, a '70s-era RC-4136.

PACKAGING

For our purposes, IC op amps typically come in two packages: 8-pin DIP (dual inline pin) for single and dual op amps and 14-pin DIP for quad op amps. All are easily socketed. Many chips are also available in the surface-mount (SMT) package. Because the pin-outs are pretty much standardized, the interchangeability factor is a tempting tease that implies plug-and-play upgrade potential, but comes with the warning, "Proceed with caution." With the Internet providing easy access to data sheets and a deluge of opinions, the only question left is, "How to choose?"

The specs are mind-numbing at first. Supply voltage range is self-explanatory, but with names like open-loop gain, bandwidth, distortion, noise, slew rate, DC offset and settling time, some specs are tangible and some are not. Gain is a variable that affects each of these parameters and stability. Increased gain and signal levels raise distortion and awareness of noise while decreasing bandwidth. What starts out as several megahertz might be reduced to the upper kilohertz when the gain is 100 times the original signal.

TAMING THE COWBOYS

In this age of kissing digital zeroes for fear of losing resolution, one short-term fix for what might seem like "bad analog sound" is to back off, take advantage of headroom and let noise be your dither. Seriously, no amplifier sounds its best when pushed toward the rails except when you are specifically looking for distortion. Op amps are not internally designed to emulate guitar amps.

It is nearly impossible to resist the temptation to compare specs. Yes, a modern op amp boasting a slew rate of 20-volts-per-microsecond (V/µs) is better than 30-year-old 2V/µs technology, but that doesn't imply that 2,000 V/µs is going to be as noticeable an improvement. Such demon-speed may be a gift to those in search of "effortless sonics," but taking advantage of video-agile ICs is not a plug-and-play upgrade. That's the domain of people with RF skills.

There are plenty of vintage consoles out there limping along at 2 V/µs that just happen to sound amazing for that old-fashioned rock 'n' roll sound. You might prioritize your upgrade investigation by targeting the preamp ICs or, if outboard preamps are plentiful, focus on the mix bus and master module as Dan Kennedy did for his Trident 65 upgrade (featured in "Tech's Files," December 2000).

DESIGNER CIRCUITRY

Despite the ease of ICs, some designers still choose discrete circuitry. Rather than initially obsessing over specs, their goal is simply to realize an idea in hardware. Each person has tests that weed out problems and assist in maintaining high standards—a type of headroom that translates to reliable performance in the field under adverse conditions. And yes, many designers do not have engineering degrees. This should be encouraging to all you "tweakers" out there. Now get to work! You've got some catching up to do.

When I asked Crane Song's Dave Hill for an example, his discrete output amplifier had to pass an acid test of driving a 100kHz square wave into a 75-ohm

ENGINEER YOUR FUTURE

World Radio History

load. If it still looks like a square wave and remains stable, then the circuit is a winner. In this case, a square wave reveals an amplifier's ability to drive a capacitive load (a potential cause for instability), which is what 1,000 feet of cable looks like to a piece of audio gear.

Kennedy is using discrete amplifiers in the AC signal path and ICs in the DC servo loops for his new EQ-2NV, a vintage Neve-inspired equalizer. DC offset and DC stability (settling time) are two issues that can reach a critical mass in high-gain applications (for example, in a mic preamp). Such idiosyncrasies reveal themselves in funny ways—as scratchy pots and switches—as do oscillations.

DC offsets are measured in millivolts (mV) and hopefully microvolts (μV), a rather intangible specification compared to the brute-force transistor stages of the original single-ended, Class-A Neve designs. The output amps are biased to operate around 12 volts (half of the power supply), so blocking caps are used throughout. If a capacitor becomes leaky (develops a parallel resistance), then DC from one stage can re-bias another stage to the point of compromising headroom, or worse, creating nasty distortion. Similarly, a transient pumped through a Neve amplifier stage will typically bump all of the bias points. With an oscilloscope, you can easily watch the recovery, a snail's crawl compared to the needs of digital audio converters that rely on amplifiers with fast settling times (on the order of a few hundred nanoseconds).

At the other end of the spectrum, Jim Williams of Audio Upgrades typically chooses video op amps for audio applications. It is a different philosophy aimed at improving existing equipment and not recommended for your first D.I.Y. I recently repaired a mic preamp in a Fostex portable DAT recorder, substituting an OPA2604 for an NE5532. Some might view this as an upgrade, but I saw it as using what's on-hand. This is a somewhat less-romantic notion than what some would imagine; designers know what works, what doesn't and where the laws of diminishing returns come into play. You should know that the OPA2604 was totally unstable without additional decoupling—a challenge in a cramped surface-mount village.

I've put together a chart of some of the most popular IC op amps available at www.mixonline .com. Happy reading!

MIX ONLINE EXTRAS

Visit www.tangible-technology.com for more on this newly updated series on upgrading.

Tweakers Clint Green (background) and Chris Vrenna—awake enough to pose for the camera

CHRIS VRENNA'S TWEAKER
INSOMNIA CREATES ALT-ROCK INSPIRATION

By Bryan Reesman

Sleep deprivation sounds like it would be an artistic inhibitor, yet Chris Vrenna found it to be a powerful inspiration when assembling Tweaker's new album, *2 a.m. wakeup call*. After his wife repeatedly found herself waking up at 2 a.m. night after night, and waking him to prove it was no fluke, he began to explore the concepts of dreams, nightmares and insomnia. With its striking mixture of moods, musical styles and guest vocalists the latest Tweaker album—which runs the gamut from heavy rock sounds to spacey ambient interludes—appropriately reflects a turbulent night of semi-sleeplessness.

Such aural adventures are natural for Vrenna, the former Nine Inch Nails drummer who composed the soundtrack to the video game *Alice* and has remixed such diverse artists as Weezer, P.O.D. and David Bowie, among many other endeavors. Since recording Tweaker's 2001 debut, *the attraction to all things uncertain*, Vrenna has also teamed up with guitarist Clint Walsh, who plays with The Motels and actress Juliette Lewis' band. The two make a good fit.

"Clint and I did the bulk of the work on the record, especially the writing and a lot of the sound creation, very late at night, just because daytime gets so crazy and hectic working on scores or remixes," explains Vrenna. Besides, he jokes, his wife would have poked him awake anyway. The nocturnal sessions recalled his Nine Inch Nails days when his former band recorded all night.
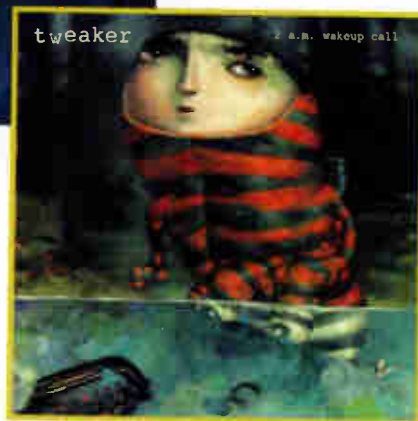
Like Tweaker's debut, *2 a.m. wakeup call* traverses a wide range of musical ground, although Vrenna feels that the new album is more cohesive. "It's not an electronic record, but it definitely is electronic-sounding somehow," he notes. "Even though we're using more organic instruments, you certainly couldn't call it a plain-old organic rock record." Unlike the first Tweaker album, which was developed more from sonic experimentation, Vrenna and Walsh began writing with simple instrumentation and then expanded their palette of sounds once the tunes were fleshed out.

Contrasts between (and often within) songs define *2 a.m. wakeup call*. The opening track, "Ruby," alternates between delicate acoustic passages and a "Melvins-heavy" rock groove. A bubbling, gurgling, NIN-like synth line and electronic drum sound drive the brooding "Truth Is." The ominous "Movement of Fear," a cover of the Tones on Tail tune with the saxophone part played on trumpet by Walsh, has a distinctly Spaghetti Western feel to it. And the dreamy closing number, "Crude Sunlight," with its mixture of plucked guitar parts and e-bow harmonies, acts as a lullaby to lull the listener to sleep. "We effected

OZOMATLI
ECLECTIC, MULTI-ETHNIC AND BUSTLING WITH ENERGY

By Chris J. Walker

Ozomatli's bold and energetic music possesses elements of rock *español*, hip hop, Latin, alternative, jazz, funk and various world genres. Sometimes, myriad styles can be in one song; other times, they are singularly featured—really, there's no telling what this nine-piece ensemble will do. They constantly surprise their fans with an adventurous, creative spirit. In concert, they're a colossal force, consistently winning over a variety of audiences, from the aggressive, moshing Warped Tour attendees to wine-drinking, cheese-nibbling jazz festival types. One of their most successful opening slots was on a Carlos Santana tour: "Some people might even be intimidated to play with a group like Ozomatli," Santana said of the group, "because they've got all that youthful energy and the crowd loves them. I like that energy. I thrive on it. They're a great band. They just need a couple of songs to get to the radio airwaves so they can get to the next level."

Indeed, until recently, Ozomatli's studio albums have suffered in comparison to their

live shows, which are full of passion and exuberance. For Ozomatli's self-titled 1998 debut CD, produced and engineered by T-Ray, they tried to record as much as possible without overdubs and layers of tracks. Eventually (and reluctantly), they succumbed to the advantages of multitracking, perhaps losing some spontaneity in the process. For the band's second effort, *Em-*

Ozomatli's core members, from left: Asfru Sierra, Wil-Dog Abers, Raúl Pacheco, Ulises Bella, Jiro Yamaguchi and Justin "Nino" Porée

brace the Chaos (released on 9/11/2001, of all days), the studio process was less intimidating but still not very comfortable for them. The group employed multiple producers on that one effort, with Los Lobos' Steve Berlin, Mario Caldato Jr., Bob Power and the band all producing, while Robert Carranza, Dave McNair and Power shared engineering and mixing duties.

A six-song EP that came out in September 2003 was an attempt to rekindle some of the fire of their very first recording and doubled as a way to keep their fans happy during what turned out to be a three-year gap between full-length CDs. Their latest album, *Street Signs*, was released in late June. "That [EP] was the closest we've come to capturing that 'live' kind of feel," stresses percussionist Jiro Yamaguchi. He, along with bassist/vocalist Wil-Dog Abers, percussionist/vocalist/MC Justin "Nino" Porée and engineer Carranza, were at Concord Records' Beverly Hills offices to talk with *Mix*. "I don't know if that necessarily was our goal, but some of the songs capture that and we were able to transfer it to CD." Porée adds, "It is a struggle and as long we're a group, we'll be dealing with that. In a lot of ways, you just can't capture that [live sound]. It's a different energy at a concert: People are there

and you're feeding off of different things. But the EP does that justice."

Carranza, who also mixed the project, notes, "These guys are into the more organic part of the sound. But as the process has been going on, they're now starting to understand how distortion and compression factor into things and how to really make it work for them." And so, when it came time to record *Street Signs*, they were more comfortable with what they were hearing in the studio and more open to experimentation. Rather than recording the album in one studio, Carranza—who has worked with Jack Johnson, Molotov and, most recently, Los Lobos—tried to capture the band "anywhere there was power." That meant working in homes, hotels, studios on the road and several studios around L.A., including Glenwood Place and Concord's "G" studio. Everything was recorded on Pro Tools systems, including M-Box, Mix Plus and HD models owned by various members and engineers. Passing files and CDs was just part of the process in making the record, as was extensive experimentation with all sorts of plug-ins. Additionally, Carranza used API and Neve preamps to inject some analog warmth.

PAUL McCARTNEY'S "UNCLE ALBERT/ADMIRAL HALSEY"

By Gary Eskow

Bach, Beethoven—those guys may edge a legendary musician or group out over the long haul, but will any musician ever have a more explosive short-term impact on the world than The Beatles did during their great run that ended with the release of *Abbey Road* in 1969? After the group splintered and each bandmember was left to his own devices, it came as no surprise that the prolific Paul McCartney, whose cherubic smile masked a flinty resolve, was first out of the gate. *McCartney*, released in 1970, yielded the hit "Maybe I'm Amazed" and remained on the charts for nearly a year. Not bad for an album recorded entirely at home.

Always a workhorse, McCartney began writing material for his next album, *Ram*, while the first album was still sailing on the charts. Although some critics fault *Ram*, which was released on May 17, 1971, as the saccharine effort that began a slide into camp from which McCartney has never fully recovered, McCartney's hauntingly beautiful touch can be heard throughout the album and is particularly evident in "Back Seat of My Car" and "Ram On." *Ram* also produced the smash single "Uncle Albert/Admiral Halsey," which combines McCartney's knack for memorable melodies with some of that theatricality he was always prone to.

Rhythm tracks for "Uncle Albert/Admiral Halsey" were cut in Studio B at CBS Studios on East 52nd Street in Manhattan, with CBS staff engineer Tim Geelan at the desk. Now semi-retired and living in a house that he built into the side of a mountain in Virginia, Geelan cut 22 songs with McCartney during a six-week period in 1971.

"Working on 'Uncle Albert/Admiral Halsey' was one of the highlights of my career," says Geelan, whose long list of credits includes engineering for Dave Brubeck, Wynton Marsalis, Billy Cobham, The Dictators, Blue Öyster Cult and many others. "Paul was a great producer: thorough, businesslike and loose at the same time. They were very comfortable sessions that followed a pattern. We'd start working at nine or 10 in the morning. Paul would show Denny Seiwell, the drummer [who would later become an original member of Wings], and David Spinozza and Hugh McCracken, the guitar players who split the date, the song we'd be tracking that day. After rehearsing for several hours, we'd cut a version of the tune and then have a lunch break. After lunch, we'd listen to what we had and then record another couple of takes if it was necessary.

"We had a 3M MM-1000 16-track recorder and a home-made console at CBS. Studio B was a big room, about 40 or 50 feet long and 50 feet wide with a 40-foot-high ceiling. We didn't worry about bleeding at all. The setup was real tight and everyone had headsets. Paul was absolutely the best. I was impressed with his musicianship and command of the studio."
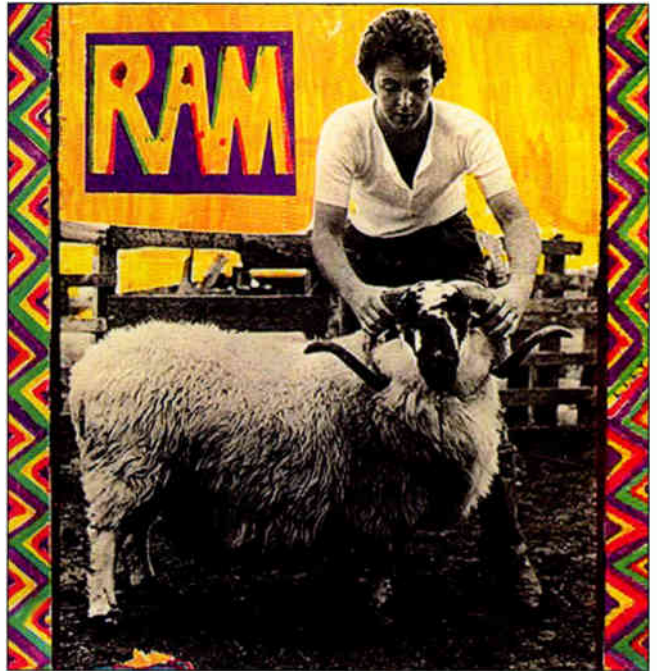
Dixon Van Winkle remembers the *Ram* sessions well. A young staff member at A&R Recording in New York City at the time, Van Winkle had been on the job for about six months when McCartney and his wife, Linda, showed up after scheduling conflicts forced them out of CBS. "I was a setup man in those days," says Van Winkle. "Phil Ramone was the king of large orchestral recordings in New York at the time. He didn't have that many guys around who had gone to music school and could read scores, which I was able to do. So I had some value to Phil, who asked me to work with him on the *Ram* sessions."

A&R had four studios in Manhattan; A1 was located in the penthouse at 799 7th Ave. "A1 was one of those magical New York rooms—arguably the best of them all," Van Winkle says. "Originally a CBS studio, it was large enough to handle a full orchestra and it sounded great. We had a warm, fat vacuum tube Altec console that had been custom-built with handmade sidecars and four Altec 604E speakers across the front room, each powered by a 75-watt McIntosh tube amplifier.

"Paul came over to A&R to track the orchestra, vocals and some other overdubs with Phil. But Phil had a scheduling conflict one day and Paul asked me to take over. Things went well, and then Paul asked me if I'd finish the record with him.

"Security was tight, and each day Paul and Linda would come up the back elevator with their kids and a playpen, which we set up in the front of the control room. I was a part-time nanny since Mary would often be crawling around the console and sitting on my lap! The interplay between Paul and Linda was sweet, especially when they were on-mic. Linda actually came up with some parts on her own—the entire backing vocals on 'Uncle Albert/Admiral Halsey' consists of the two of them—but when she needed a hand, Paul was great with her. We used a combination of U87s—if we were working on something smooth—and Shure SM57s for the rockier stuff throughout the album. Paul did-

n't care what mic you put on him, although he did like the U87. He's such a great singer. I know that the vocals they cut over at CBS are Paul singing live right off the floor with the rhythm section into an Electro-Voice RE20, which was a relatively new mic at the time. They recorded the telephone section [of the song] over at CBS, as well. That character voice was also Paul, with a simple highpass filter engaged to give the telephone effect."

Although Van Winkle did not record the guitar parts that McCracken contributed to "Uncle Albert/Admiral Halsey," he remembers the guitarist well. "Everybody wanted Hugh on their sessions. He wasn't the best reader in town, but the parts he came up with were fantastic. I've heard lots of great guitar players over the years, and I'd say Hugh was in the top five." Still an active player who can be heard on the current Alicia Keys record and other tracks, McCracken has distinct memories of working with McCartney.

Cool Spins

The Mix Staff Members Pick Their Current Favorites

Fats Waller: *The Centennial Collection* (Bluebird/BMG)

Every household should have a Fats Waller anthology, and this one is definitely a cut above. It offers 21 songs on a single disc, spanning 1927 to 1942 (the year before he died, at just 39), plus a bonus DVD containing a number of fine short film clips from the late '30s that feature Waller lip-synching (very well, too) and hamming it up for the cameras, invariably surrounded by a bevy of lovely ladies. (The final DVD cut is a humorous 1983 animated rendering of Waller's immortal "Your Feets Too Big," starring an elephant!) Waller was a unique and gifted artist—a great singer, pianist, songwriter and entertainer. He was, in effect, an early crossover artist who melded Tin Pan Alley sensibilities with blues and jazz; a true titan of the first half of the 20th century. Most of the milestones are here: "I'm Gonna Sit Right Down and Write Myself a Letter," "Ain't Misbehavin'," "The Joint Is Jumpin'," "I Ain't Got Nobody," "If You're a Viper," "Up Jumped You With Love," "'Taint Nobody's Bizness If I Do," et al.

Reissue producer: Barry Feldman. Transfers, audio restoration and mastering: Doug Pomeroy. —Blair Jackson

Michael Tolcher: *I Am* (Octone)

This is a powerful debut for Tolcher, a Georgia native who has been drifting around for a number of years soaking up influences and honing his songwriting, ending up in New York working with the adventurous production team known as Pop Rox (Sam Hollander and Dave Schommer). Tolcher's writing is direct and incisive, personal without being solipsistic, simultaneously intimate and inclusive. Musically, he's all over the map, with dashes of rock, folk, funk and soul, but his pleasing lead vocals and strong melodies tie the disparate styles together nicely. And while one senses that most of these songs would also work well performed with a single acoustic guitar, the dense—but never cluttered—production, showcasing multiple guitars, interestingly lay-

"My answering service got a call asking me if I'd like to audition for *Ram*, but I was in Florida working on an Aretha Franklin record and didn't pick up the message until I got back into town," says McCracken. "I was disappointed but happy that David had gotten the job." Spinozza, who has gone on to enjoy a long and successful career in the music production business and in Broadway pits, now plays in the *Hairspray* orchestra. After working on "3 Legs" and several other *Ram* songs, Spinozza and McCartney parted ways. As McCracken recalls, his phone rang one afternoon and Linda McCartney was on the line.

"Linda asked me to hang on while she put Paul on the phone. Paul simply asked me if I could be in the studio the following morning at nine o'clock. I canceled the sessions I had and made the date." After recording several tracks under McCartney's direct supervision, it came time to lay down basics for "Uncle Albert/Admiral Halsey." "This song represented a breakthrough in our musical relationship," McCracken says. "Paul is a genius. He sees and hears everything he wants, and would give specific instructions to me and the drummer. But he didn't know what he wanted the guitar part to be like on this song. I asked him to trust me and he did. After I came up with the parts, he was very pleased. For the rest of the record, Paul let me try things out before making any suggestions."

"Uncle Albert/Admiral Halsey" stems from the British musical theater and has the feel of an overture, with multiple sections that are independent of one another. "That's right," agrees Van Winkle, "and there were some issues we had to deal with as a result. For example, if you listen carefully, you'll hear Paul gurgling right before the telephone voice comes in. That sound was his imitation of a British telephone ring. He was supposed to give the engineer a cue when he wanted the lowpass filter dropped in for the Admiral Halsey character. The engineer made the switch too early and the filter came in on one of the gurgles! Paul didn't care, though. To him, it was all about the feel of the music."

The chart, written by George Martin, also posed some engineering challenges. "Everybody knows that George Martin loved experimenting as much as any of The Beatles did," Van Winkle notes. "If you listen carefully to the trumpet solo that leads into the 'Hands across the water' section—which Marvin Stamm, who's still an active player in town, played—you'll hear Paul whistling. Underneath, there's a sound effect written out by George Martin for four French horns; it's a flutter-tongue, fast-fingering atonal lit-

tle thing in the horns' low range.

"Our usual way of recording horns at A&R was to put a pair of mics either in the front or distant rear of the players. That was traditional at the time, based on the fact that the French horn is a reflective instrument and you want to capture it with some space. But that's not what Paul was used to. He wanted us to stick mics right up in the bell. Although the U87 was the mic we used on horns back then, it would have been too big, so we probably used AKG C-60s instead. At any rate, none of us could figure out the purpose of the chart at that section, but when the mix was completed, it all worked perfectly.

"We did have a little problem mixing some of the horn pads in other sections of the song because they often sat directly in the vocal range. We pulled them down and processed them, as I remember, and you can hardly tell what they are at some points."

Recording the rain and thunder effects that help glue the first two sections together would be easy today, but it was no small feat in 1971. "I remember Paul telling me that Armin Steiner went out to the edge of a cliff to record that storm, and that it was Paul's idea to add the effect at that point in the track."

Very few artists in 1971 had the clout to release a single comprising 12 discrete sections, but McCartney's artistic vision was so solidly commercial that no record execs would cross him. Still, Van Winkle was unprepared for the success of "Uncle Albert/Admiral Halsey": "Despite Paul's charm and ability to pull off anything, I was surprised when the record went so big."

The first single from the *Ram* sessions, "Another Day," never made it onto the album. It was Van Winkle who decided that "Another Day" should be the first release: "We were sitting in Studio A2 one day listening to the takes and Paul asked me to pick the single. I had definite feelings about the record and was in love with 'Another Day.' Paul said, 'Okay. "Another Day" it is.' I mixed the track and David Crawford cut about 100 copies of it in a back room at A&R for the radio stations. The next day when I heard it on the air, I realized it was a disaster! We got carried away with the bass part, and when it hit the radio station's compressor, it pumped like crazy! I learned that lesson real quick! But we never remixed the song, and Paul never said anything about it."

Based on *Ram*'s success and the relationship they developed, McCartney asked Van Winkle to work with him on *Red Rose Speedway*, which was also recorded at A&R. McCracken eventually worked in the

studio with all of the former Beatles, and considers himself fortunate to have had the experience, even though his work with John Lennon brought him face to face with tragedy: "I first worked with John on 'And So This Is Christmas.' Like Paul, he was extremely intelligent and aware of what he wanted in the studio. But you'd never find two more diametrically opposed personalities. I was working on *Double Fantasy* at the time of his death. How long did it take me to recover from that night? I *still* haven't recovered."

Currently active as a freelance engineer, Van Winkle lives in New York City with his wife, Jan. ∎

TWEAKER

everything in it to sound [like] AM radio or Victrola," reveals Vrenna. "We went sound by sound and effected [each one] separately and then put them together."

2 a.m. wakeup call begins with a more energetic, upbeat mood, but as the story progresses and the further "through the night" the listener goes, things get darker and heavier until the soporific finale. The concept is relayed through a variety of vocalists, including Robert Smith (The Cure), David Sylvian, Jennifer Charles (Elysian Fields), Nick Young (A.I.), Hamilton Leithauser (The Walkmen), Mellowdrone and Will Oldham (Palace Brothers).

Vrenna admits that working with vocals recorded under different conditions and of varying quality was challenging with one exception: Each singer used his or her own home studio for vocals. "This record was done through Pro Tools and FedEx," quips Vrenna. "Once the singer agreed to be on the project and they heard the music and picked the song that they would want to be on, we talked concept and the whole approach. They wrote their own lyrics, given the concept of my album, because all of the Tweaker albums are concept albums. With every song having a different vocalist, it helps tie the record together."

Some singers sent back initial ideas in MP3 form, but others did not. "Once they recorded, I would get a finished Pro Tools session back in the mail," says Vrenna. "I just imported the whole track back into my session, which I had usually worked on while they were doing their vocals." The same went for former Smiths guitarist Johnny Marr, who played on "The House I Grew Up In." While on tour supporting Björk, Old-

Chris Vrenna surrounded by enough gear to tweak an album to his heart's content

ham had time to visit Vrenna in L.A., so they recorded his vocals with a Soundelux 47 FET mic, Vintech X73 preamp/EQ and a Universal Audio 1176 compressor.

Vrenna's home studio takes up two bedrooms with the larger bedroom as the control room. His house was built in the 1930s, so the smaller crib room adjoining the control room has a separate door. "The crib room is pretty small, about 10 by 12," he says. "That's my little overdub room where we do vocals and combo amps, things of that nature."

When it comes to gear, Vrenna is all about analog and analog/digital hybrids. He loves his Korg microKORG with its superior Vocoder. Software synth-wise, he uses "all the Native Instruments stuff. I really like Battery. The B4 is on the Tweaker record in a few different places. Since I'm committed to Pro Tools, I can't be bothered hooking up second computers and PCs. To me, that isn't going to make my song any better. I do like all the Eric Persing [of Spectrasonics] stuff: Stylus, Trilogy and Atmosphere in particular. I have a Virus plug-in and just got Mach 5 recently. I know it's Version 1.0, but it works well and is pretty efficient. There hasn't been a software sampler yet for Pro Tools."

In terms of keyboards, Vrenna notes, "I just like big, shiny keyboards with lots of lights. My sampler is still an E-mu: the E4 Ultra. I still use it every day of my life. They discontinued them because they've gone software, as well with the new E-mu X Series, so I've been picking up used E-mu's out of the Recycler and eBay and building a couple more hardware samplers just so I have them." His arsenal also includes a Waldorf

Microwave XT, Kurzweil K2000/R, Roland V Synths, an old Virus updated "as far as it will go," a Nord Lead 2, Alesis Andromeda A6 and "a good old trusty JP8000."

Vrenna says that most of the bass and guitar parts on the album were recorded direct. "Every single bass sound—and everyone's going to shoot me for saying this—is a [Line 6] Bass Pod Pro," he says. "But then I come out of the Bass Pod Pro and always put that through my Summit Audio TD-100 tube DI. I don't use the compression within the Pod. I put that through an API and then my ADL tube compressor. Then that goes in. I use [the Pod] for its tones and then do other stuff." As for the guitars, "A lot of the heavy guitar stuff is the Mesa Tri-Axis and the Recto Directo, things like that. Most of it is direct." When he did choose to mike the amp, he used either a Shure 57 or a Sennheiser 421.

Because he is a drummer capable of writing his own beats, Vrenna never uses loops. For programmed sounds, he often uses Battery and employs the drum sounds his synths have. "I tend to just start from some of those and layer stuff," he remarks. "I just layer sounds underneath and then make my own stuff, and then put those through pedals." With limited space in the crib room, Vrenna uses a compact Yamaha custom drum kit. Vrenna pads the room down when he records vocals, but then he pulls the padding off the walls for a boomier drum sound. Longtime friend and engineer Bill Kennedy, whom the drummer has known since his NIN days, helped him experiment with different ways to mike the kit and they created a good overall scheme.

To record the kit, Vrenna placed a vintage AKG D-12 inside the kick and a Yamaha

NS-10 (used as a mic rather than a speaker) outside the kick. "It gives you a nice sub," he says. "You put that in front of the kick head." For the snare, he placed a Shure SM7 on top and a Sennheiser 441 below. Sennheiser 421s are used on the two toms and either an AKG 451 or a Shure SM7 on the hi-hats. He favors the 451 because while the SM7 "gives a nice, thick chunky hi-hat, being such a small room, I kind of needed to thin it out."

With restricted space for overheads, he utilized a RODE stereo mic. "It sounds awesome," remarks Vrenna. "Now I have just one stand and I can center it. I don't have to worry about two huge booms." But he did experiment by taping a pair of Crown PZMs to the walls. "My studio has a little hallway outside of the room that can be sealed off

> [The singers] wrote their own lyrics, given the concept of my album, because all of the Tweaker albums are concept albums.
> —Chris Vrenna

from all the other rooms in the house, and then there's a bathroom in that hallway that you can close. There's a skylight in that little hallway. We'd sometimes stick an [AKG] 414 around the corner, in the bathroom, put it on the floor or sometimes we'd stick it way up in the skylight—just weird combinations like that."

Though Vrenna does most of his recording work in Pro Tools, he still likes his "trusty [Yamaha] 02RV2. It's seven years old. I have it loaded with four AES cards, which gives me 32 [channels]. Then I have one extra 888/24 set up as a hardware insert box, where I just have XLR snakes. I can use all my external stuff while I'm mixing."

His recording chain includes a mixture of vintage and contemporary analog gear: an API Lunchbox with EQs, a pair of API mic preamps, a Vintech X73 preamp, a full rack of GMLs, a pair of Avalon U5 DIs and a pair of Summit tube TD-100s. For outboard compression, he owns an 1176, a Distressor, a pair of old dbx 160s, an ADL 1000, an old Vocal Stressor from Audio Design Recordings, a pair of 160Xs and a Joe Meek. "I take any combination there, depending upon what I'm tracking," he says. "It gets me into

Pro Tools, and then I have an Apogee as well that I use as my main head."

Still, Vrenna stresses, "It's not all of the new options that make creativity. I think it's actually *removing* options that make creativity. When you're making this weird record and you don't have a budget to go anywhere and you have to do it all at home—all right, *there's* my limitation. Let's see what we can do. And it makes it fun, too."

MIX
ONLINE
EXTRAS

OZOMATLI

"You never know what you might be able to use on a record," bassist Abers notes. "You might be in the nicest studio, but then you might record something in the bathroom while you're on the road. And that ends up on the record because of a certain quality—the tone or vibe of whatever you captured at that particular moment." Carranza encouraged Ozomatli to ignore possible technical issues and go with their artistic urges above all. "I've always told these guys that the tools we use to make records are very important to the process, but, ultimately, good songs come through any format."

"The biggest challenge from our standpoint was just getting it done," Abers says. "But [technically], it was getting stuff off of our rigs onto one drive and weeding through what we were going to keep and what we were going to re-record."

As it turned out, the eclectic tunes on *Street Signs* differed more creatively than technically. Ozomatli criss-crossed the globe genre-wise to concoct an exhilarating mixture of Middle Eastern, Latin, hip hop and North African grooves. Collectively, they were interested in expanding horizons and saw it as way to reach a more worldwide audience. The lead track, "Believe," is an exotic fusion of Qawwali and post-alternative styles, accentuated by Moroccan sintir master Hassan Hakmoun and the French-Jewish gypsy violinists from Les Yeux Noirs. One of the group's heroes, Latin piano wizard Eddie Palmieri, plays on "Nadie Te Tira," a scintillating progressive salsa number. Other guests include Los Lobos singer/guitarist David Hidalgo, who contributes to "Santiago"; original group DJ Cut Chemist, who is on "Déjame en Paz"; and another original MC, Chali 2na (of Jurassic 5), returns for "Who's to Blame." On several tracks, too, the Prague Symphony recorded through a T-1 line, with strings and brass di-

vided into 12 tracks miked for a possible surround mix. Mario Calire, formerly a member of The Wallflowers, is the band's new drummer, and MC duties are now handled by Jabu, who is featured on the title track.

Premier mixer Serben Ghenea, who has worked with the likes of Justin Timberlake, Michael Jackson and Jewel, was selected to meld Ozomatli's mish-mash of location and studio work into a cohesive recording; fortunately, they had all been transferred and rough-mixed on a single Pro Tools format. Then, typical of how Ghenea works with artists, he modified the band's mixes and put the results on his FTP site for them to check out and approve in their own environment. "I don't prefer it that way," Ghenea comments from his Virginia Beach, Va., facility, "but it saves time and is more convenient for everyone."

Bandmembers Yamaguchi, Porée, Abers and multi-instrumentalist Ulises Bella traveled cross-country to supervise the final mixes for several days in February 2004. "I was looking forward to seeing what he would do with the tracks," Yamaguchi says. "It was interesting to see how he took the different forms of music and strung them all together." Ghenea wouldn't go as far as to say it was a cakewalk putting all of these disparate elements together, but he notes that he's had a lot of experience with that type of thing.

"These kind of projects are a little more complicated and you have to make sure everything is represented," he says. "Also, the focus of each song has to be present, kind of like the first N.E.R.D. record. The way you put that all together is tricky and you have to walk a thin line, basically."

Pro Tools|HD was used throughout the final mixing of *Street Signs*, along with a slew of plug-ins, including Ghenea favorites such as Channel Strip, IBFP, Filter Bank, Compressor Bank and Waves applications. He has no formula for implementing them, saying that every song is different. Due to his high volume of work, he wasn't positive about what plug-ins were used for each song. "We worked a couple of hours on each track," the mixer remembers, "and were just tweaking—nothing had to be done over. One of the guys would have an idea and might want to try something. When that happens, I call it a 'tweak 'n' freak' session: You tweak the song to make everyone happy and then experiment with stuff. That's a lot easier to do when everyone is in the room."

Overall, he was very impressed by the

band and the tremendous variety of styles on the album. "The band is cool and is one of the best-kept secrets in the music industry," he says. "They're ready to become a major mainstream group. The CD isn't that different from their amazing live shows because they play everything." ■

ered vocals and enough "modern" sonic touches to place it squarely in 2004, makes each song both interesting and distinctive. Jam band hero Warren Haynes and Roots drummer ?uestlove are among the fine supporting cast.

Producers: Pop Rox. Co-produced by Gary Philips. Recording engineer: Chris Shaw. Mixed by Tim Palmer, Mark Endert (one song), Duke Mushroom (two songs). Studios: Avatar, Quad, Pop Rox, Mission Sound, Mojo. Mix studios: Westlake, Larrabee West, Pop Rox, Scream. Mastering: Leon Zervos at Sterling Sound and Masterdisk. —*Blair Jackson*

Goapele: *Even Closer* (Skyblaze)
Like neo-soul artists Jill Scott, D'Angelo and Erykah Badu before her, San Francisco Bay Area–based Goapele has a voice that's all charisma and warmth—it's the dominant fea-

ture of *Even Closer*, a re-worked version of her 2002 debut album, *Closer*. Picking from classic inspirations in R&B, soul and jazz, she molds her influences to her distinctive vocal style, focusing on romantic ballads, but also taking time out for political issues, as befits the daughter of one-time South African political exile Douglas Mohlabene. "It Takes More" is a sample/break-beat-driven number about a young man lost to violence, while "Red, White and Blues," her creative commentary on the events of September 11, 2001, is dominated by electric guitar and various effects. Though some of Goapele's lyrics lack originality, they are sung with such exuberance that, somehow, the cliché moments don't

nag. Favorite tracks include the summery "Ease Your Mind," the popular and sultry "Romantic" and "The Daze," which features rappers Casual and Zion I. Clearly, Goapele has the inspiration, the talent and the tools to develop well beyond her eclectic debut.

Producers: Sun & The Moon, Soulive, Eric Krasno, Mike Tiger. Engineers: Steve Counter, John Shrive, Seth Waldmann (mixing). Studios: Hyde Street, Sparks, The Hole, Amps House, FM, Sun Moon, Chung King. Mastering: Ken Lee/Kenneth Lee Mastering, Bernie Grundman Mastering. —*Breean Lingle*

Youssou N'Dour: *Egypt* (Nonesuch)
Since appearing on Peter Gabriel's *So* album in 1985 and touring with Gabriel and with his own group subsequently, the amazing Senegalese singer Youssou N'Dour has amassed a following all over the world. He's sung in a variety of languages and dabbled in all sorts of pop-related styles to broaden his audience, but it's safe to say that what really sells his music is the sheer beauty and purity of his singing, no matter what the tongue. On the surface, N'Dour's latest might seem inaccessible to a Western audience: It's an entire album of Muslim/Sufi devotional songs, with N'Dour's voice singing in his native language, soaring above an orchestra of strings and a wide variety of Egyptian/Arab instruments. But it's a very rich and rewarding listening experience. The music—so full of dramatic swoops and hypnotic rhythms—is positively intoxicating—like a Sufi dance. The blend of strings, flutes and hand percussion is exquisite and, as always, N'Dour's singing sounds like it's being delivered from the heavens. In this case, maybe it is.

Producers: Youssou N'Dour and Fathy Salama. Recording engineers: Khalid Ra'ouf, Alaa El-Kashif, Segui Niang, Ndiaga N'Dour. Studios: Hany Mihanna (Cairo), Mix Studio (Cairo), Studio Xippi (Dakar, Senegal). Mixing: Philippe Brun at Mrs. Jones Productions (Paris). Mastering: Bob Ludwig/Gateway Mastering. —*Blair Jackson* ■

COAST

L.A. GRAPEVINE

by Maureen Droney

I'm not a roller coaster fan. Get me on a Big Dipper and I'll white-knuckle the bar and hyperventilate for the duration. For the most part, I'll also keep my eyes squinched shut, risking only occasional peeks at the scary climbs and drops. Which is exactly what I did at the Institute for Creative Tech-

An up-close view of ICT's technology, built to simulate technologies used to train American troops

nology's (www.ict.usc.edu) Virtual Reality Theatre during the roller coaster portion of a film demonstrating ICT's VistaRama technology. It was, sonically and visually, a truly amazing ride.

I met with Dr. Chris Kyriakakis, director of the University of Southern California's (USC) Immersive Audio Laboratory, and his team, including sound designer David Miraglia and sound programmer Ramy Sadek, who provided a glimpse into the audio portion of a rather extraordinary joint venture.

Launched in 1999, ICT is a partnership between the U.S. Army and USC to develop advanced modeling and simulation technologies to train American troops for 21st-century missions. ICT is also tapping resources from the Hollywood and video gaming communities. The ultimate goals: to create experiences so real that "your heart rate goes up and you actually perspire" and

to provide a safer and cheaper supplement to large-scale military exercises.

Scientific exploration often yields consumer goods; after all, Corning Ware and Tang were byproducts of the 1960s space program. In the case of the ICT audio department, its significant exploration into surround sound may just provide some impetus—and some pretty cool software—for the professional and consumer audiophile.

According to Kyriakakis, immersive audio is a family of technologies related to capturing and rendering sound. The lab, located at USC's main campus, focuses on aspects of sound signal processing: how it's simulated and perceived, how microphone arrays capture sound direction and how going beyond 5.1-channel surround enhances the experience. One of Kyriakakis' colleagues in this work, also a USC professor, is Tomlinson Holman, best known as THX's longtime technical director.

A main focus of the group's work is 10.2 surround. "Why 10.2? What's wrong with 5.1?" asks Kyriakakis rhetorically. "5.1 was an afterthought for movies. The format wasn't based on human perception or requirements, but on the space left over after the picture on the physical film.

"The decision of how to use the available channels was correct," he continues. "Hu-

NASHVILLE SKYLINE

by Rick Clark

Last month, I introduced some of the wonders of my neighborhood: East Nashville. When I started gathering information on recording happenings in the 'hood, I showed the article to several of my musically creative neighbors, who quickly added loads of other candidates within walking distance.

Down my street—Forrest Avenue—is a club called The 5 Spot. It's a place where all sorts of cool acts appear, such as Kenny Vaughn, Tim Carroll, Goose Creek Symphony, Wayne "The Train" Hancock, Walter Egan and Blue Mother Tupelo. Late one slow afternoon, my next-door neighbor, Mark "Sergio" Webb, was sitting at the bar when former Attorney General Janet Reno popped in with a friend for a drink and watched a band they knew during soundcheck. You never know who will show up here, but you aren't surprised.

Every Tuesday night, you can hear Joe Venuti– and Stephane Grappelli–style jazz courtesy of the Nashville Swing Band, featuring violinist Buddy Spicher. Spicher lives right behind The 5 Spot, where he has his own recording studio called the Fiddle House. Across the street from his studio is one of Nashville's classic studios, Woodland Studios, where Spicher cut countless sessions when it was a commercial facility.

Since he first arrived in Nashville in 1959, Spicher has been the go-to guy for that extra something. He was also in the highly regarded local "A-list" session player's band, Area Code 615. It's Spicher's fiddle that you hear behind many famous recordings by Kitty Wells, Jimmy Martin and Hank Snow, Bob Wills, George Strait, Linda Ronstadt, Hank Thompson, Bob Dylan, the Rolling Stones and Garth Brooks, to name a few. He received the Country Music Association's Musician of the Year award in 1983 and 1985.

I mentioned Spicher to producer and former Area Code 615 bandmate Norbert Putnam. "Buddy's one of the most creative violinists," Putnam says. "He was the guy who got the call when you wanted more than what a country fiddler could give you be-

cause he was so well-versed in pop, rock and jazz. He can really handle it all."

Spicher's Fiddle House studio has been the scene for a number of fine projects since its opening in 2000. The studio includes a Mackie HDR 24-track/96kHz hard disk recorder and Digital 8 Bus console. The mic collection includes Neumann TLM 103s, Audio-Technica 4050s and 4033s, and models from AKG, Earthworks, Audix and Shure. Avalon and PreSonus mic pre's are featured, as well as a Yamaha C7 concert grand piano.

Spicher's sons, Matt and David, and Kurt Storey handle engineering duties. Matt Spicher's engineering credits include Johnny Cash, Marty Stuart and Pam Tillis, while Storey has worked with scores of Nashville artists, including the great fiddler Mark O'Connor, bluegrass legend Bill Monroe and, more recently, the Grammy-nominated bassist Victor Wooten. Both of Spicher's sons have "mirror" studios in their homes, allowing them flexibility to work on projects outside of the Fiddle House while maintaining a continuity of methodology.

When David Spicher isn't producing and engineering tracks at the Fiddle House, he plays upright bass for Pam Tillis, Crystal Gayle, John England and the Gypsy Hombres.

Recently, the Fiddle House was the place where Buddy Spicher and Vassar Clements (another violin legend) recorded a fine album —CONTINUED ON PAGE 134

Little Hollywood owner and chief engineer Danny Ramsey

NEW YORK METRO

by David Weiss

With 8 million residents, five boroughs and one very large recording community, New York City is all about togetherness, right? But the shifting rules of audio are encouraging more and more producers here to create their own facility rather than depend only on other studios. For serious pros and their clients, simply sprucing up a spare bedroom doesn't cut it anymore, but there is more than one way to go solo in this town.

At 26, producer/engineer Britt Myers (www.brittmyers.com) is too young to have cut his teeth at a large studio but wise enough to know that getting his own small space in Manhattan's Chelsea neighborhood was worth the investment. A deep expertise with Digidesign's Pro Tools and some lucky breaks early on were just enough to get Myers a steady stream of indie record production and mixing gigs (Essex Green, Dressy Bessy, Palomar), but he knew he had to make a move to hit the next level while retaining his independence.

"I actually was working out of my apartment in 2003, and it was kind of miserable," Myers admits. "I felt like it was a chicken-or-the-egg thing: When do you decide to set up your own space? I wanted better clients than I had, I needed better clients to get a studio, but I needed a studio to get better clients. I just felt I needed a pro environment to get clients into that was inviting, comfortable and people would enjoy working in."

Myers used the always-handy Website craigslist.org to locate his approximately 300-square-foot space, which comprises a comfortable control room, complete with city
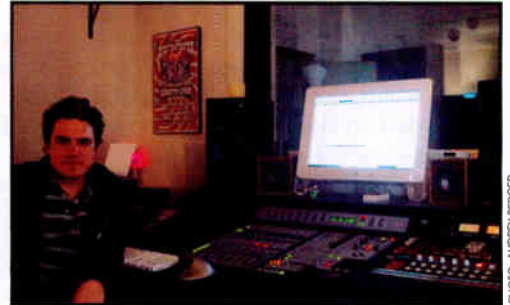
Producer/engineer Britt Myers combines pro with comfort to attract his clientele.

views and a big leather couch, plus an isolated tracking room—space that was going unused by a New York City jingle company. "My budget wasn't high," he says. "This place was out of my price range, but I made it work. I felt that it was important to have a space big enough to grow in."

The gear list is small but carefully selected, starting with a ProControl surface for his HD4 rig. "Working in Pro Tools, speed is of the essence and the ProControl is crucial to all work," he reports. "It's the simple stuff, like just being able to mute two tracks at once and controlling with the faders. I use the DSP editing area, which a lot of people don't use, and the channel matrix to select mutes and solos. I use every button on this thing every day."

Lately, Myers usually finds himself in a traditional recording studio if he needs to record drums. "I'm always looking for a place to track drums for $500 a day," Myers says. "There are six or seven studios where I can do that in Brooklyn and a couple in Manhattan. If I had the budget to go to a big studio to do basic tracks, I would. They're more comfortable, the equipment works better and there are more amenities, but it comes down to if I make more money or the studio in Manhattan makes their base rate. I'd rather slug it out in Brooklyn."

It's all part of a professional style that gives Myers plenty of incentive to keep his clients moving through his growing private —CONTINUED ON PAGE 136

COAST TO COAST

SESSIONS & STUDIO NEWS

NORTHEAST

Keith Richards, Bonnie Raitt, the Neville Brothers and Joss Stone were working with Sheffield's Remote Recording (Phoenix, MD) audio truck in New Orleans to record a high-definition release for Bottom of the Ninth Productions...Jazz pianist Michel Camilo was at New York City's Avatar Studios recording a self-produced solo record in 5.1/DSD with Rob Friedrich at the board and Peter Doris assisting. Meanwhile, producer Arif Mardin was working on Queen Latifah's latest album with engineer Michael O'Reilly and Brian Montgomery assisting...Masque Sound Recording Studios' (NYC) John Kilgore mixed composer John Adams' memorial to New York City and those lost in the 9/11 attacks called *On the Transmigration of Souls*. The CD will be released on the anniversary of the attacks, and was written for performance by the New York Philharmonic...Jive Records artists had heavy presence at Sound on Sound Recording Studios (NYC), pairing rap artists Petey Pablo and Ciara with producer Lil Jon, Mobb Deep with engineer Steve Sola, Twista with engineers Nick Cannon and Brian Stanley, and Rasheeda with producer Shondrae and engineer Stanley.

The Ji Project 2004, to be released this fall, was the result of sessions at Kosmic Music Studios (Chennai, India) with (pictured from left) drummer Pepe, producer Carlos Rodríguez, producer Mr. E, producer/engineer Adam Kagan, Kosmic Music's Ananda Guri and producer Enzo Buono. Mixing was completed by Kagan at Persona Music (Burbank, Calif.).

SOUTHEAST

Gloria Estefan, husband Emilio Estefan and world music engineer/mixer Sebastian Krys were in at Crescent Moon Studios (Miami) tracking and mixing her newest album, *Unwrapped*, using the studio's new ATR-102 analog recorder, bought specifically for the session. The project was mastered by Bob Ludwig at Gateway Mastering (Portland, ME)... Country group Diamond Rio were at Cartee Day Studios (Nashville) with production duties handled by Mike Clute and engineering by Mike Hanson. Missy Elliott was in to tape for an upcoming TV show, while Lynyrd Skynyrd's Johnny Van Zant and .38 Special's Donnie Van Zant were in tracking with producers Blair Daly and Tom Hambridge; Ben Fowler engineered...Quad Studios (Nashville) hosted enduring country artists The Nitty Gritty Dirt Band to finish overdubbing and mixing their latest release for DualTone. Behind the board were John Macy and Marc Lacuesta...Singer/songwriter Moe Loughran was in with producer John Pisciotta, engineer Patrick Kelly and assistant engineer Ben Terry at the Sound Kitchen (Franklin, TN) working on her new album, *Songs From the Barbwire*, to be released this summer... Roots-rockers Carbon Leaf were at Kitchen Mastering (Chapel Hill, NC) making final tweaks to their Vanguard release, *Indian Summer*, with engineer Brent Lambert. Drummer and former member of Ben Folds Five, Darren Jesse, finalized the debut release with his current band, Hotel Lights, while Durham, N.C.–based bluesman

The Backstreet Boys were in The Village's (West L.A.) Studio D tracking and mixing with producer/engineers Andy Goldmark, Pablo Mugia, David Thomas and Tony Sheppard, assisted by Ghian Wright. Pictured (L-R): Howie Dorough, Nick Carter, A.J. McLean, Brian Littrell and Kevin Richardson

Cyril Lance was in mastering his live CD, *Live From the Outskirts*, with Lambert at the board.

MIDWEST

New York–based indie pop quartet The Damnwells (Epic) were in at Chicago's Million Yen Studios working on follow-up material for their 2003 release, *Bastards of the Beat*...The Chicago Recording Company (Chicago) hosted director Steven Soderbergh and producer Jerry Weintraub in Studio 4 to shoot scenes for the upcoming film *Ocean's Twelve*. The session included actors Don Cheadle and Andy Garcia, and studio engineers Dennis Tousana and Mat Lejeune, who were on-camera as extras.

SOUTHERN CALIFORNIA

In at West L.A.'s The Village were Slipknot tracking and mixing their latest release, *Vol: 3: The Subliminal Verses*, with producer Rick Rubin (the Red Hot Chili Peppers, Johnny Cash), engineer Greg Fidelman and assistant engineer Dan Monti. Meanwhile, Jimmy Jam and Terry Lewis were in with Usher to work over tracks for his now chart-topping CD, *Confessions*. ∎

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

man perception, in terms of differentiating direction, is better in the front. If you're going to have five channels, three in the front and two in the back make sense. But it falls short as we expand the field of hearing to complete surround. With 5.1, you can't get up and walk around. You also can't have sound travel seamlessly from, say, front-left to rear surround-left because there's a big gap right at 90 degrees—the boundary of front and back perception."

The bottom line, states Kyriakakis, is that humans can perceive astronomical numbers of sound channels—theoretically. But in a practical sense, after 10.2, more channels probably have diminishing returns. "Audio today at a 24-bit sampling rate exceeds the human range of perception," he notes. "And in tests, the farthest frequency I've seen my students be able to hear is 24 kHz. So even given that you want to make sure filters work correctly, you really don't need much more than 48 kHz. Our point is, don't eat up the space available with things that don't make a difference. Eat it up with more channels!"

Keeping the basic 5.1 front setup of left and right at 30 degrees, 10.2 adds left and right wide channels at 60 degrees to increase lateral reflection, making with the center channel five channels across the front. The surrounds at 110 degrees remain the same as in 5.1. A back surround channel equals eight channels in the horizontal plane. Add two "height" channels—as high as possible in the room—and you've got 10. Splitting the subs (the lows from the speakers on one

The Wizardz of Oz are Liz Hooper (l) and Andrew Bojanic—transplants from Australia

side to one sub and from the speakers on the other side to the other sub) makes 10.2.

The 10.2 surround system at ICT is remarkable. The integrity of mixes, unlike with 5.1, was maintained even when I walked around the room. I listened "outside the box" to a 10.2 version of a Shakespeare play, some Herbie Hancock mixes and particularly enjoyed the opportunity to experience Handel's Messiah from different perspectives in an auditorium. The team also hooked me up with a head mount so I could stumble my way through an interactive, immersive army-training scenario. That was intense. The scene changed as I walked and turned my head, and sonic cues were a huge part of the experience.

The team is working on a patent-pending method of synthesizing and filtering sounds to re-create different acoustic environments for multichannel playback and panning, and systems that, triggering from 3-D graphic coordinates, drive sounds over 10 channels of audio.

When I turned off of busy Woodman Avenue onto a charming tree-lined Sherman Oaks side street, it actually seemed a bit like small-town Kansas. But as it turns out, I was projecting in the wrong direction. There to visit up-and-coming production team The Wizardz of Oz (aka Andrew Bojanic and Liz Hooper, www.worldsend.com/wizardz.html), I soon learned that "Oz," in this case, actually refers to their native Australia.

A dynamic duo with an infectiously upbeat attitude, the Wizardz are a fun hang, an

---

Next, the basics: "For logistical reasons, it's great to plug in a DI and get moving quickly," Powers affirms, "so that everybody's energy is happening. But when I'm producing or when there's time, I like to use DI and amp and I try not to premix them to the same track." Power's current favorite DI is an Aguilar DB 900 tube model. "[Aguilar] also makes a bass preamp [the DB680]," he notes, "a two-space, rackmounted, multitube stage preamp. It's line-level out, which makes life easier. I now bring that and the Aguilar DI everywhere with me."

A proponent of "less is more" when tracking, Power argues for the virtues of transparency. "My sound is the sound of the artist; I try to see how little I can get away with. I put the signal into a DI, pick whatever preamp is around that's good or use the Aguilar, and I almost always put a compressor in-line."

For bass mics, Power grabs Electro-Voice RE20s, Neumann FET 47s and AKG D-12s—"not a D-112, that's too midrange-y"—with just one mic on a cabinet. "There's usually not the luxury of time to mess around with mic placement," he explains. "If you want it a little brighter, move it toward the middle. A little darker, move it toward the edge. Tilt it away and see what off-axis sounds like."

For preamps, Power reaches for Neves, "which tend to be a little darker. I also have an Avalon 2022, a dual-channel mic pre with a couple of DIs on the front, which is very even and smooth throughout the range. For compression, I usually pop in my Distressor because it's so adaptable. A lot of guys like dbx 160s on bass, but during tracking, I find them a little severe. And while 1176s are great, you've got to be careful: Without too much trouble, you can make one sound really uncomplimentary to the player. You can do that with a Distressor as well if your envelope characteristics are wrong. An attack that's too fast or a release that's too slow can take all the life out of a part."

He continues, "Another thing you have to be aware of is losing frequency response. Compression can suck some of the bottom out. It's a problem because you want to control the bottom and keep it tight and consistent. Overall, how you use something is more important than what you use. That said, I have a Tube-Tech CL1B, which I love and sounds really good on electric bass. I also have a couple of Pendulum variable-mu compressors, a 6386 and an ES 8, which pretty much sound good every time. And for rock stuff, a dbx 165 is great. Actually, bass is one of the few things that sounds good in it. I always push in the Auto button."

What about plug-in signal processing? "I've gotten over my prejudice. That said, compression is one of the things that plug-ins do the least well. Time-based effects and EQ have gotten better and better in plug-ins, but I still find analog compression is better for bass."

Power's advice: "Spend time learning your gear. Beyond that, sit back and listen to the music and not the engineering. It's a damning acuity when you spend all your life listening really intently and specifically to the sonic side of things. Be careful that it doesn't ruin your understanding of music on a broad level." ∎

Maureen Droney is Mix's *Los Angeles editor*

attribute that the artists they work with seem to appreciate. It's a diverse group: In their two years in L.A., they've amassed production credits with the soulful Keaton Simons (whose single, "Currently," from the EP of the same name, is garnering major buzz in L.A.), co-writing a song for Ricky Martin, production for Maverick's Lillix, Elektra's The Troys, Sony Columbia's dance hall artist Triniti and (with fellow Aussie Charles Fisher) on Olivia Newton-John's *Duets*, as well as a TV theme for an upcoming Nickelodeon/MTV program.

The Wizardz had already paid a goodly chunk of dues Down Under, where, together and separately, they gigged in a succession of bands while hustling writing and production work on the side. They're multi-talented: Bojanic plays guitar and keyboards and is a programmer and recording engineer; and Hooper, a vocalist who plays keyboards, bass and violin, has a degree in jazz.

It was respected Los Angeles–based manager Sandy Roberton who advised that writing and producing for others was the path to focus on. "We sent him some songs he liked and it was, 'Drop what you're doing. I've got some ideas for you,'" recalls Hooper. "It was great because we'd always wanted to come to L.A."

It was also Roberton who, upon their arrival, hooked them up with red-hot producers The Matrix (Avril Lavigne, Christina Aguilera, Liz Phair), who put the Wizardz to work. "Andrew started programming for The Matrix, I did a lot of backing vocals and we did some co-writes—all the odds and ends that needed doing," explains Hooper. "It snowballed from there."

"It's a funny thing about Australia," muses Bojanic. "There's amazing talent there, but no real support network. That's why so many Australian artists are being signed by American labels. You basically have to go there, find them and bring them back here. Australia is a great place to nurture talent, but there's no way to get to the next level."

"The population is so small that it only takes 75,000 units to go Platinum," Hooper points out. "Most of the live music gets performed in pubs. If you're a struggling R&B or hip hop artist, there's no method of getting your music out there."

Now, with credits under their belt and a publishing deal with The Matrix/BMG, the Wizardz are developing talent on their own, co-writing and/or producing for Arkansan neo-soul vocalist Ivy Levan, 16-year-old pop singer Angel Faith, L.A. teens the Valli Girls and OC hard-rockers Dumb Luck, among others.

Pro Tools 5.0 suits their composing and recording needs; Hooper edits with an Mbox and Pro Tools LE system. Upgrading to HD will have to wait as they've been collecting

---

COAST TO COAST

guitars instead, including some recommended by friend Matt Ferguson at Gibson. "It's what goes into the box that counts," states Bojanic. "We've been spending money on great guitars, good amps and some vintage API outboard."

A favorite recording chain is a RØDE (that Aussie thing again!) or a BLUE Bottle mic through an Avalon 737 preamp into an API 525 compressor. Other fave tools are Native Instruments' B4 organ module and Battery drum sampling software. A huge homemade sample library gets plenty of use, but live recording remains at the heart of Wizardry.

"So many artists need somebody in their court to help them be the best that they can," says Bojanic. "Currently, labels can't afford to do very much in the way of developing talent. That's where we fit in. It's what we love to do." ■

E-mail maureendroney@aol.com with your L.A. stories.

NASHVILLE SKYLINE

called *Runaway Fiddle* for the OMS label.

Just half-a-block away in a house on Forrest Avenue is engineer/producer Jordan Richter's two-room facility with full tracking rooms and lounge called Roswell East Studios. Upstairs is a mix and overdub room run by engineer and Nuendo expert Steve Mabee. Both rooms are built on the Steinberg Nuendo software and hardware and accommodate all Pro Tools clients. The main tracking room showcases a refurbished Neotek Series III and an MCI JH-16 2-inch 16-track. Main room monitors include Meyer Sound HD-1s and Yamaha NS-10s powered by a Bryston 4B amplifier. In addition to a wide array of outboard gear, Richter is also proud of his large collection of pedals, guitars, amp heads and cabinets, making it an ideal studio for rock recordings.

Roswell East's client list has included singer/songwriter Matthew Ryan, Sixpence None the Richer, the Legendary Shack Shakers and pop/rocker Neilson Hubbard, as well as Ginny Owens, Margaret Becker, Steve Hindalong, Regie Hamm and others.

"This neighborhood has been exploding with business within the last three years," says Richter. "We're one block from the best coffee shop in the city, and between one block and one mile are some of the best restaurants and bars in town. There are great art galleries within an easy walking distance and an overall creative vibe to the whole area."

Two streets over on Ordway is Brent Truitt's Le Garage. Truitt is one of the city's most

highly regarded multi-instrumentalists, primarily on mandolin. During the years, he's toured with the Dixie Chicks, Dolly Parton, Alison Krauss, Vassar Clements, John Hartford, Holly Dunn and Jon Randall. As a producer and engineer, Truitt's credits include a Grammy for engineering Riders in the Sky's *Monsters, Inc.* and *Woody's Roundup—Toy Story 2*, both for Disney/Pixar. Truitt also recorded the music for *Birds on a Wire*, the Oscar-winning short film that was featured before *Monsters, Inc.* He also recorded and performed on the soundtrack for the HBO movie *The Grave*.

This year, Truitt engineered and co-produced guitar great David Grier, did engineering for an upcoming Nitty Gritty Dirt Band CD, mixed the new release by bluegrass group the Lonesome River Band, and produced several bluegrass and Americana projects for various labels.

"The artistic community in East Nashville has gotten huge in the last few years," says Truitt. "There are more songwriters, young country stars and management-type folks in the neighborhood. There are little studios everywhere. This seems to be the area of Nashville that musicians are drawn to, and it's not because of the cheap housing anymore. Maybe it's the sense of community or the feel of an old-fashioned neighborhood. Or it could just be the Bongo Java Coffee Shop."

A short walk from Truitt's Le Garage is a several-block clump of unique Spanish Mission–style homes called Little Hollywood, where numerous music folks call home. At 1804 Lakehurst Dr. is Little Hollywood studio, which has been owned and operated by Danny Ramsey for the past seven years. It's the former home of Marty Robbins, who bought it from Grady Martin, one of Nashville's top session players in the '60s and '70s.

"I'm a one-man studio, and my past work and word of mouth have kept me self-employed," says Ramsey, who worked as a mastering engineer for many years. "Working in Nashville for so long, I've gotten to really know the styles and strong points of the local musicians and vocalists. The ultimate rush for me is to bring in people on a project who I believe in and watch the whole thing come together."

The week I bopped over to the studio, Ramsey was involved in a session with Dave Roe (bassist for Dwight Yoakam), Chuckie Burke (Little Milton drummer), Mike Holmes (T. Graham Brown keyboardist) and Larry Hanson (guitarist for Alabama). Brent Mason, one of the most highly regard guitarists in a city flooded with them, has been a client of Little Hollywood, as have Walter Egan, Victor Wooten. Ronnie McDowell, The Jordanaires and players like Bobby Keys, Jeff Cease, Albert Lee, and D.J. Fontana and Scotty Moore.

The fact that I can't walk a block from my house without encountering someone that speaks the language of music, art and recording is a real blessing. The interesting thing is, I know that folks in

Dillett's Kampo residence is just one example of a growing trend that sees New York City facilities leasing out their smaller rooms to high-traffic producers in hopes that visitors will also need their larger studios as projects proceed. "Many of the artists I work with now just can't afford to spend any reasonable amount of time in a major studio,"

square-foot room, featuring Dillett's mouse-driven Pro Tools rig and supplemented by an iso booth, has so far lived up to its promise, helping out Dillett, his clients and Kampo simultaneously. "The key about it here is the flexibility of the ownership," he stresses. "Give me some time and I can attract more and more clients to this studio, and you'll make more money than if you were just waiting for bookings. They had this space empty for a while; it would have been extremely expensive for them to turn it into a traditionally designed room. But for a homey edit-mix-and-hang, it surprised me. It sounds completely good in here."

With what he's saving on real estate, Dillett is sure to put back in with the right gear for the room. "The mic pre's and EQs are API, Avalon, SSL—all of that is important. If you're going to work in a space like this, there's no excuse not to have something to get sound into the machine in a quality fashion. If everything you're going to record in here will go through just four or five mic pre's, some of them should be good!"

Besides needing to go downstairs to Kampo's Studio A to record drums, Dillett also must leave his room for 5.1 mixing. "There's a surround room down the hall," he says. "They have a technical acoustic advantage, and I'm more than willing to pay for a great room to do a surround mix. It's also good for having a critical-listening environment."

By getting creative with a solo working situation, Dillett found that he's been able to get more creative with his work. "I feel like I'm more willing to experiment and try new things now," reflects Dillett. "The ability to try something and not have to worry about wasting time and money has been pretty liberating—there are a lot fewer restrictions."

Pictured from left: Raswell East's engineer/producer Jordan Richter, Starlight Drifters producer/guitarist Chris Castello and guest vocalist Kenneth Brian

PHOTO: RICK CLARK

Sylvan Park, Inglewood, Madison, Goodlettsville and a number of other places around the area would probably have much the same enthusiasm for the scene as I do. I'm certain I'll be hearing from them, too. Hey guys, I'll get to you in the coming months. ■

Send your Nashville news to MrBlurge@mac.com.

Dillett observes. "But so much of what is done to make records now can be done without a physically large space. I was surprised, myself, at what proportion of a record I could do here with just a vocal booth and a Pro Tools setup. Apart from large-scale live tracking, just about anything can be done here."

The spacious and relaxed-feeling 500-

NEW YORK METRO FROM PAGE 129

practice rather than larger recording studios. "My path doesn't cross with them that much these days," he says of the larger facilities. "I do pretty much everything on my own. I think a lot of young engineers try to go to big studios to try to get work, but my philosophy has been to go to clubs to get work. That's where everything is going on."

The more seasoned producer/engineer Patrick Dillett (www.patrickdillett.com), whose recent credits include David Byrne, They Might Be Giants and Arto Lindsay, found a decidedly different way to fly his plane. Rather than steer clear of an established recording studio, Dillett walks into one every day—Kampo Studios in Manhattan's NoHo district—and then goes straight to Studio B, which he's operated independently for two years.

Bryce Goggin at Trout Recording, a converted metal/wood shop in Brooklyn

PHOTO: HOWARD SHERMAN

Then again, you can always head to Brooklyn, get a nice big space and start from scratch, like producer/engineer Bryce Goggin (Phish, Pavement, Elliott Sharp). In addition to Pro Tools|HD, Goggin had a Neve 8028 console and a large collection of gear that needed a home. "I enjoyed working in my own space more than working in other recoding studios and, economically, I wasn't getting the major-label work that I had been early on," Goggin says. "So here I could work with other artists, not be dependent on major labels and I could float the rate, depending on the funds for the project."

Goggin's space (www.troutrecording .com), a former metal/wood shop, may not be aesthetically pretty, but unlike Myers or Dillett, he doesn't have to go out-of-house for anything. "I do the whole nine here," he says. "I needed a minimum of about 1,200 square feet to take a band in. This is Brooklyn, so everything is driven by the width of a building. You need space to fit the console and also for no standing waves. I felt like any other parameter, besides square footage and ceiling height, I could manipulate afterward."

Goggin maximizes the room's value by having it double as an instrument storage space for his associates. "People have an understanding that if their gear is here, it will get used and respected. The B3, the Moog are part of this collective space so that when clients come here, it's this fluid, creative environment instead of bending over backward to get or rent instruments. It's a great savings, but it's also a great thing to come to a recording studio and have a palette to draw from."

In New York City, having your own studio doesn't necessarily make you a studio owner. For a gearhead like Goggin, it's just a means to keep your fingers on the faders. "To me, this is just a logical extension of a home studio for someone who wants to work on a grander scale," he states. "I'm 39 years old with a wife and kids, and I still want to make music. This scales back the economics, so I can make as much f***ing noise as I need to and still move forward." ■

Send your Metro news to david@ dwords.com.

CONGRATULATIONS!

Congratulations are in order for a couple of New Yorkers in the Mix family, each of whom welcomed a wee audiophile into the world recently. Former New York editor Paul Verna and his family saw the birth of their second child, Alex, in May. Not to be outdone were current New York editor David Weiss and his wife, Linda, whose son, Broderick, was born on May 30. Way to go, gentlemen!—Eds.

ZOOMING In on the ZONE

grammed it—by plugging it in and hitting one button—to continuously transmit. So if I go out of range, when I come back in, it handshakes and you start right back up."

The Bluetooth link is now fully integrated into Crossroads' inventory, usually connecting Spoto's trusty Dell laptop to a dbx DriveRack 480 and Behringer digital crossovers.

But what about interference? If Bluetooth takes off in the U.S., as it already has in Europe, won't that put Bluetooth in the same bind as WiFi? Perhaps, but that's not likely for some time. Unlike WiFi, Bluetooth was designed from the outset for multiple densely packed applications. It uses the same frequency-hopping, spread-spectrum technology as 2.4GHz wireless phones, which is highly immune to interference. As the interlaced signal randomly hops across 72 channels, spurious non-handshaking signals are basically dismissed as background noise.

True, there are some limits to what Bluetooth can do. For one, you can't plug in directly to a TCP/IP network, which makes it less suitable for complex applications. And expanding the operating range significantly beyond 100 meters is highly dubious at this point.

Still, Spoto does not report any problems working in and around the larger venues in Dallas, including tuning the lawn system at the Smirnoff Music Centre amphitheater and tweaking delays in the largest hall at the city's sprawling convention center. Even an intervening wall or two does not seem to cause any problems, he maintains.

WHY WAIT?

Whether using the Bluetooth or WiFi route, anybody can now get in the game for well under $500. That means regional sound companies, corporate A/V providers and even some clubs and churches can start fine-tuning their systems from any seat in the house—one more excuse for bad sound biting the dust.

"Now it's a tool everybody can use," says Spoto, who already has started spreading the word via the DriveRack Web forum. "It's ubiquitous, off-the-shelf technology, which is always the best technology in my book."

MIX ONLINE EXTRAS

Bruce Borgerson is principal of Wavelength Communications. His first story for Mix appeared in the September 1979 issue.

Yamaha's profoundly insulting and abusive "tech support") infuriating to say the least, and so I was forced to return it before I shot it. But even as I felt profound relief at its departure from my life, I missed the sweet somethings that it had whispered in my ear during our insufferably long weeks together. Ah, hell. Let the next guy deal with it.

ROLAND FANTOM X8

Worst-sounding of the three. Not *bad*-sounding at all, just not *real* at all. But it's a freakin' *blast* to use. It is intuitive, straight up, unbelievably versatile, has more features than most large cities, and to top it off, it has more cool problem-solving tricks and friendly shortcuts than I would have thought possible. Every single thing I thought of trying, every weird routing path or modulation twist I could think of, it did. Easily. And then it offered 20 new ones that I had never thought of.

The color screen is blinding but very cool. You can even load your own pictures as backgrounds. This is of course totally critical for proper operation. I loaded inspiring underwater pix from a recent dive trip and my music got much better.

The way instruments are categorized is excellent, and you have several different methods of surfing them, as well. The 16-track sequencer, 16-track voice layer mixer and its other tricks make building voices, songs and final demos a breeze. It's all very good.

Every button on the Fantom X makes sense and there are a lot of buttons. A Shift key modifies functions exactly as you hope it would. And speaking of buttons, this synth sports a unique and very usable backlit silicon-rubber velocity- *and* pressure-sensitive keypad for drums, favorite function shortcuts and more. Also very well-designed and clever enough to make you smile. Actually, the Fantom X made me smile more than any instrument I have run across in a decade.

Buttons flash and dance in ways that could be distracting to the less-disciplined keyboardists out there, but it assures that you know what is going on with a fast glance. The screen's use of color ranges from gratuitous to genuinely informative (record-armed tracks say so, in red).

Digital I/O is 44.1k S/PDIF and storage is a PC card slot. (I use a little universal adapter that lets me save to CF, Memory Stick and SM.) A single USB port talks to your computer, and excellent editing software is provided for both Mac and PC. Thank you!

There are *four* expansion slots, and they have a boatload of cards for them.

One of Fantom X's main limitations was raw power. I would often run out of effects before I had completed my planned voice.

Voice realism was another area of relative weakness. Pianos had less dynamics and were a bit thin at the bottom and reedy and static in the midrange compared to the Yamaha. And strangely, there is a clearly audible lack of finesse when velocity-switching between layers in both acoustic and electric pianos. Even weirder, the Wurlitzer exhibited the strange habit of never coming off a hard hit. By this, I mean if you hammer a key to get that overdriven growl and then hold the note, it just keeps on growling instead of calming down after a half-second or so as the real instrument does. Unfortunately, this produces a sound much like a Farfisa organ. This left me remembering Italy, but baffled.

Along the same lines, their new monster acoustic piano is, for some reason, half-damped at best. Hit and release a note and it keeps on playing. So strange. It's as if there are many programming mistakes—things that are just incorrect. I can't figure it out.

But then, the Fantom X makes the best blues harp through a guitar amp via a crystal mic that I have ever heard from any synth. Go figure. I think the patch is called Blue Bullet.

Oh, yes. There is a very nice multiband mastering compressor onboard.

For me, this was the most intuitive synth of the lot, and certainly has the most (and the brightest) lights. It is a true joy to use and can expand beyond rational need, but is weak in raw power and voicing. It is the *antithesis* of the Yamaha.

KORG TRITON EXTREME 88

Well, now. Having listened to the older Motif, Fantom S and Triton to get a basic foundation while waiting for the ES, X and Extreme to come out, I had frankly dismissed the Triton and had no intention of auditioning the Extreme. This just wasn't in the same league. It was behind the others in features, sample ROM and sound. In fact, I was getting ready to send this column in, comparing the three-month-old Motif ES with the three-day-old Fantom X, when I happened to be in a music store on the day the Triton Extremes came in.

When I heard it, I did an auditory double-take. I only had eight minutes before the store closed and I had trouble waiting until I could get one the next day.

Now, this is not the ultimate keyboard.

World Radio History

THE FAST LANE

It was, however, surprising enough on many levels.

To start with, it fell between the Yamaha and the Roland. Not in the middle, though.

The acoustic and electric pianos sound very good and, just as important, behave properly, unlike Roland's. The acoustic guitars are quite good, as well, even without all the pull-offs and velocity-controlled harmonics that the Roland offers. Just about every voice was considerably more accurate and *much* more correctly assembled.

And the overall *sound*? The Triton Extreme can be by far the grungiest, dirtiest, most organic of the lot. In case you are unclear as to my meaning, this is a good thing. It sounds physical. Even my sterile and cold friend agrees with me on this: It is warm.

And warm brings up the Triton's weirdest and perhaps best feature. This 2004 touchscreen digital sampler keyboard has a *tube*. One lonely little 12AU7 over on the left end proudly, if not ostentatiously, poking out under a clear plastic bubble. At first I decided that this alone was reason enough to dismiss the machine as a joke without even listening to it. I did not need a fake tube circuit in my life. I gots me *real* tubes.

I mean, the heater doesn't even glow orange. They have a blue LED under it so that some light comes out when it is on—but it's *blue* light.

But then I turned it on. Mmmm. Soft, round, fat. I use it on every organ voice and half of all the others. This tube is not just a gimmick like most of the other low-voltage tube effects out there; it actually does real nonlinear tube stuff at low voltages. (±24 volts is the current theory.) It's good.

This thing makes a credible B3/Leslie combo right up there with the Yamaha, though totally different. The Motif's Leslie has dirty contacts and a blown tweeter—just the way I remember them. The Triton's Leslie is in better physical shape, but the power tubes have a lot of hours on them and are getting a bit soft. Very nice. Both have most of the wood on the bottom left side split and peeling. Too many spilled beers and dolly dings, I guess.

So…as far as sound, the Triton Extreme does fall between the other two, but much closer to the venerable Yamaha. And it does all that cool tube-distortion stuff that nothing else does.

And the user interface falls between the Yamaha and Roland as well, but in this case, *much* closer to the Roland.

Navigation is rational, and easy to learn and remember. It feels more American, if that means anything to you. Americans

were involved on many levels, so I guess it thinks more like I do.

Graphics are flat and business-like, as opposed to the Roland's Las Vegas–style blinding (but fun) animated flash, or the Yamaha's 1958 one-pixel on/off microscreen.

Everything is there, some in real controls and some on the touchscreen. Cool, but it takes getting used to. I wish it was color and tilted up like the Roland. Korg does have a color touchscreen in a different composer keyboard. Too bad it isn't in this, as well.

Analog outputs abound, and digital I/O is optical (ground loop-free) but strangely 48 kHz. But, 48 has been a Korg tradition for quite some time now.

One caveat: Due to the core technology that the Triton Extreme evolved from, it can't do 128 notes of any single voice like the other two can; it only does 60 from one source and 60 from another. You decide if this is a problem.

This is the *loudest* synthesizer in the history of man. I'm guessing that the line outputs deliver somewhere around 2,500 volts RMS. You hit a good Wurlitzer chord and sparks damn near fly out the jacks. The earphone jack is on the *front*, where it belongs. This may in fact be a safety feature, given the 2-kilovolt line outs on the rear.

Lots of switch and pedal inputs, and two USB connectors: one for a drive and one for a computer. But no editor or librarian software. Korg relies on several third-party sources for this, and I found no Mac stuff at all.

It talks to a CF card, but Korg insists that you have to totally power-down the keyboard to insert or remove it.

There are only two hot-rod mods you can do to this machine: more sample memory and their MOSS synth card. Doesn't seem like much, but this thing might not *need* much.

So. Its sound is close to the Yamaha, its interface close to the Roland. While this is not the best of either, it is in fact the best *combination*, and for my money, this is the winner.

FINALLY, THE END

In closing, I want to thank Washington Music Center for their decades of support and friendship. This is where most of the gear I review comes from—though it remains to be seen if they will let me in the door after this.

Next month, *Part 3*, The Beginning of the End: soft synths and samplers. ∎

SSC is happily snapping off guitar nails as he bangs on weighted Korg keys.

MARKETPLACE

MIX ADVERTISER SALES REGIONS AND REPRESENTATIVES
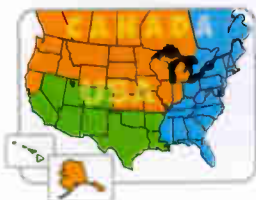
Northwest/North Central

Greg Sutton
847/968-2390
gsutton@primediabusiness.com

Southwest

Albert Margolis
949/582-2753
amargolis@primediabusiness.com

East Coast/Europe

Michele Kanatous
718/832-0707
mkanatous@primediabusiness.com

Classifieds

Kevin Blackford (West Coast)
Jason Smith (East Coast)
800/544-5530 or 510/653-3307
mixclass@primediabusiness.com

MARKETPLACE

World Radio History

World Radio History

CLASSIFIEDS

World Radio History

Clair iO/Lake Technology Contour

Controlling the Controller

A s FOH engineer for Simon & Garfunkel, Paul Simon, Steely Dan and Bette Midler, my days are spent in arenas, stadiums and amphitheaters—acceptable, but rarely great performance areas. Recently, two developments have transformed large venues: curved line array systems, and 24-bit, WiFi-addressable multiprocessors used for crossovers, EQs, compressors and line drivers. For the past two years, my choice has been the 2-in/6-out Clair iO/Lake Technology Contour frames and the proprietary Clair/Lake software. Connected to the iO/Contour units on a WiFi-enabled PC slate, I can control the audio system from any point in the venue—something I once never dreamed possible.

STARTING OUT

When I first took out a system with the iO/Contour frames, I experienced a little "gear shock": It takes awhile to get used to using a WiFi-capable, slate-type PC as the interface. Adjusting settings with a magnetic pencil requires timing and patience, and the computer response time is not immediate, so adapt your work rhythm to the system. Fortunately, the software's graphics and icons for every function are easily comprehensible. Once you run the onscreen tutorial and use the system on a couple of shows, you should easily navigate from screen to screen, moving through venues and simultaneously adjusting EQs, crossovers and delays.

A single-rackspace iO/Contour frame has two modules, A and B, each with a mono input and up to three outputs. Each side can be used as a single in/out or a two- or three-way crossover; a four-way crossover requires an entire frame. The setup screens on the slate PC let you choose what capabilities are present in each module, perhaps starting with a three-way crossover. Then, give a name to each module and assign it to a software group. For example, attaching module A and module B of one frame to a stereo group would facilitate EQ'ing both sides of a system simultaneously.

MORE FRAMES, MORE POWER

Walking to any seat and hearing the part of the system I'm facing—or any other ad-

dressable speaker group in the array and its effect of any or all speaker groups—is powerful. But this requires quite a few iO/Contour frames. To generate a 270-degree coverage pattern in an average arena, I prefer two forward-facing line arrays formed with 14 i4s and two side-facing arrays, each made up of eight i4s. I normally assign an iO/Contour frame to control speaker groups no larger than four i4 cabinets each, with seven frames dedicated to the four front and side line arrays.

LF CONTROL: FROM THE TOP DOWN

I like flying line arrays as high as possible, so separating the six top units into subgroups also gives me better LF control up near the roof. In some arenas, little or no attention is given to bass trapping, and one must *try* to control the energy reflected from a huge, often flat roof surface. I may have the audio crew wire the P.A. so only the top two i4s are on the first iO frame instead of the top four.

Two separate iO units are dedicated to the column's next six i4s, and the cabinets are again divided into upper (four i4s) and lower (two i4s) subgroups. The boxes in this part of the curve usually have the same vertical splay angle. I like having individual control on the bottom pair, as those boxes are often aimed at the floor seating just in front of the mix position and the bounce off the concrete can create its own set of problems. This is also the coverage area that includes the most variation in distance from the array and often requires the most massaging to sound even.

The bottom two boxes in the front array have the most vertical splay and will exhibit the least LF coupling. The floor reflection of high frequencies near the stage can be a problem for the performers, so this coverage area also receives its own dedicated iO unit.

MAKING MODULES

The power of the software is applied through the creation of control modules. A module may be as large as the entire system or as small as the smallest number of speak-
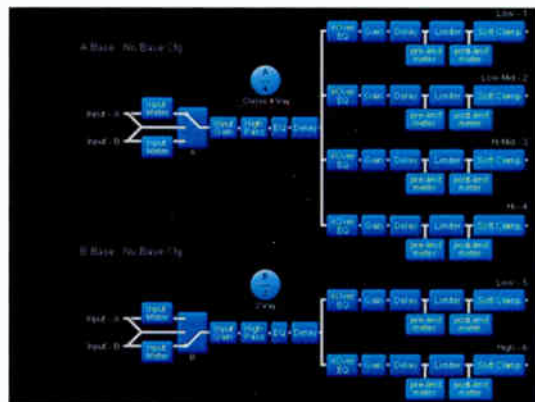
The signal path management screen offers gain/EQ/delay/ crossover/limiting/routing of the I/Os on each hardware frame.

ers each iO unit addresses. For example, I set one global module to simply mute the entire audio system including subs and frontfills. The next largest module addresses all the i4s as a group.

I set up smaller software groups to control all of the speaker subgroups—fronts and sides. The main action (crossovers/EQ/compression/delay) takes place in these groups. These modules will control one or two complete frames. I then create individual software modules to control each speaker group in the columns. These are the true working modules, and each of these has full software power: parametric/graphic EQ, crossover function, full-range delay, band delays, preemphasis EQ and band compression. To equalize the system, I start with graphic EQs on the speaker group level and then move to parametric on the subgroups within each larger division to make micro-adjustments.

The subwoofers have their own frame, with a module providing a lowpass filter, graphic and parametric EQ, delay, compression and level. The frontfills get a mono signal, but I use both sides of a frame to generate two two-way crossovers for inner and outer sends. The frontfills require different delay times relative to the main arrays and separate EQ relative to positioning.

In certain problem venues, another frame supplies EQ and delay for my powered near-field monitors. Including a spare, there are 11 iO frames in the drive rack, yet all of this incredible processing power still takes up far less room than carrying traditional crossovers and graphics. ∎

David Morgan spent the past year mixing Simon & Garfunkel's Old Friends world tour.
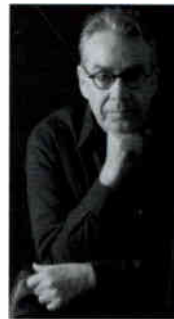
NOTEBOOK PRO AUDIO

Digital Performer in the Movies
The Lord of the Rings Motion Picture Trilogy (New Line Cinema)

Howard Shore
Composer

"For me, film scoring is a combination of tradition and technology. I write my initial sketches with pencil and paper, but filmmaking today involves a digital world with frequent editing changes. Whether I need to tighten sync on a shot, or conform my original sketch to the latest version of picture, Digital Performer gets me there. At my desk and on the scoring stage, DP is there."

MOTU
www.motu.com